Science 1st prep.

Last Look

Mr.Mohamed Taha

Write the scientific term:

1-Invertebrates animals characterized by having jointed legs

2-Particles their mass can be neglected but their charges can be be neglected.

3-The ability to do work.

4-Everything has a mass and volume.

5-Organisms that cannot be seen by naked eye.

6-The transfer of heat through solid objects from the part to another.

7-The work done during the motion of the object.

8-The difference between the mass and atomic number.

9-The mass of 1 cm3 of a substance.

10-The building unit of the living organism.

11-A bird migrates from the cold regions during winter.

12-Plants their seeds are formed inside the cones.

13-A living organism similar to the elephant extinct long time ago.

14-The temperature at which matter converts from solid state to liquid state.

15-A state of matter where the binding forces are very great.

16-A material property responsible for floating or sinking.

17-The sum of potential energy and the kinetic energy of any object.

18-Animals have three pairs of jointed legs.

19-A device used to measure the volume of the liquids.

20-Composed of different atoms bind together.

21-The energy stored inside a body when a work is done on it.

22-The transition of temperature through gases and liquids.

23-Animals with four pairs of jointed legs.

24-Particles have negligible mass and but have charges.

25-Animals of non supported bodies.

26-A desert plant its leaves modified to the thorns.

27-Materials need heating to be soft.

28-A form of energy that transfers from the higher temperature body to the lower temperature body.

29-Composed of similar atoms linked together.

30-The work done during the motion of an object.

31-A device used to convert mechanical energy into electric energy.

32-The atom at which the atomic number equals the mass number.

33-Energy neither be created nor destroyed but change from one form to another.

34-A living organism loses 25% of its weight when in the absence of water and food.

35-The energy level that saturated with 2 electrons.

36-The temperature at which matter changes from liquid state to gaseous state.

37-The spaces among the molecules of a substance.

38-The state of body, which determines the transfer of heat from or to it when it touches an object.

39-Device used to convert light energy directly into electric energy.

40-The mass of unit volume of a substance.

41-An alloy used in making gold objects.

42-An alloy used in the manufacture of heating coils.

43-The smallest part of matter which can exist in a free state and keep the properties of matter.

44-The spaces that found among the molecules of matter.

45-The simplest pure form of matter which cannot be analyzed into simpler form.

46-The combination of two or more different elements.

47-The number of positively protons in the nucleus.

48-The amount of energy lost or gained when an electron transfers from one energy level to another.

49-negatively charged particles of negligible mass that revolve around the nucleus.

50-A set of similar animals in their shape and can produce fertile individuals.

51-The ability of some living organisms to simulate the dominant environmental conditions.

52- Energy needed to transfer an electron from an energy level to another.

Write the chemical symbol for the following elements:

Potassium – Sodium – Magnesium – Carbon – Oxygen – Neon – Nitrogen –

Sulphur – Hydrogen – Aluminum – Lithium – Silicon – Helium – Phosphorous –

Fluorine – Chlorine – Argon – Copper – Calcium – Iron – Lead – gold – silver.

What is meant by the density of aluminium 2.7 g/cm3?

Choose the correct answer:

1. The number of the anterior fingers in a hawk is..... (3 - 4 - 2 - 1 finger).

2-..... Belongs to the animals with no body support.
(Octopus - Mussel - Hedgehog - Snake).

3. Camel can survive without drinking water for ……..
(3 days - 3 weeks - 3 months - a week or more).

4. Pea plant belongs to ..... plants.
(Fern - monocotyledon - dicotyledon - gymnosperm).

5. …. is from the rodents that undergo aestivation.
(Rat - squirrel - Jerboa - Desert snail).

6-The color property is a distinguishing factor between:
(Table salt and flour-iron and gold-oxygen and nitrogen-oxygen and carbon dioxide)

7- Cycas belongs to..... (Brown algae- mosses – mollusks – gymnosperms)

8- ..... is known as the number of protons and neutrons existed in an atom nucleus of an element. (Mass number- Density - Atomic number- Valence)

9- In rodents, the incisors number in the lower jaw is.....
(One pair-two pairs-three pairs- none)

10-An atom third level is saturated with..... electrons.
(Two- eight-eighteen-thirty two)

11-An object potential energy is zero when the object is at the.....
(Maximum height- earth's surface-when the object mass increases- when the object speed increases)

12-Opuntia plant stores water in it's..... (Leaves- roots-stem-fruits)

13-The atom nucleus contains..... (Protons and neutrons-protons and electrons-neutrons and electrons-protons, neutrons and electrons)

14-The leaves of the aquatic submerged plants are.....
(neckless and small-necked and long- large – sized- necked and small)

15- ……. is an example for plants that reproduce by spores:

(Pine - beans - vougheir - wheat).

Complete the following statement:

1- Electric wires are made up of ..... or.....

2- If the speed of an object motion increases into the double, it's kinetic energy increases into.....

3- Bridges made up of iron are coated in the purpose of protecting them from .....

4-The coockroach belongs to ..... whereas the scorpion belongs to ..... And they are classified as ..... animals.

5- When you examine a pond water drop by a microscope, some microorganisms can be seen such as ..... and .....

6-..... energy is changed into electric energy in the battery.

7-The electrons revolve around the nucleus of the atom in ..… According to ……

8- …….and ……. are teethless mammals.

9- Arthropods can be classified according to the number of legs into ……., ……. and ……..

10- Some plants have large - sized leaves such as ……. and some has small - sized leaves such as ……..

11- ……. is the basic unit of classification in living organisms.

12- The liquid element which is composed of one atom is ……. while that composed of two atoms is ……..

13- The …. Takes the shape of the container but, ……. has no definite shape.

4. The hydrogen molecule is consisted of ……. while the argon molecule (inert gas) is consisted of …….

Give reasons:

1. The bike tire gets hot once you press the brakes.

2. it's favorable to produce electricity from solar energy than fuel burning.

3. The atom is electrically neutral.

4. The two forelimbs in the dolphin are different from the bat's ones

although they are structured with similar bones.

5. A camel hump is considered a feature of its adaptation for survival in desert.

6. Cooking pots are made up of aluminum whereas their hand grips are

made up of wood or plastic.

7. Hedgehog has front teeth extending outwards.

8. When a zebra mates a donkey, they can't produce fertile Individuals

9. Equal volumes of different materials have different masses.

10. Some animals hibernate in winter.

11. Fuel in a car as food for a man.

12. Nuclear stations which produce electricity are preferred to those of petrol stations.

13. Ecologists do not appreciate all the technological applications which used in energy transformations.

14. Water is not used to extinguishing oil fires.

15. The mass number is greater than the atomic number.

16. The equation 2 n2 is not applied on levels higher than the 4th level.

17. The electrons are distributed to fill the K level before filling the L level.

18. The volume of a mixture of water with alcohol is less than the sum

of their volumes before being mixed together.

19. Camel is called the desert ship.

Give one difference between each of the following:

1. Insects and arachnids.
2. Rodents and lagomorphs.
3. Beans plant and maize plant.
4. Hoopoe and geese.
5. Solids, liquids and gases
5. Opuntia and calamagrostis.

Write down the formula by which you can find each of the following:

Density – the number of electrons saturates the energy level of an atom – Potential energy – Kinetic energy – work.

Write down the electron configuration of the following atoms

Then calculate number of protns, electrons and neutrons:

27Al

13

20Ne

10

$^{27}_{13}Al$

$^{20}_{10}Ne$

$^{7}_{3}Li$

Problems:

1- on determining iron density using a piece of iron of mass 87 g. The piece is immersed in 100 cm3 of water, the water increases up to 110 cm3 .Calculate iron density.

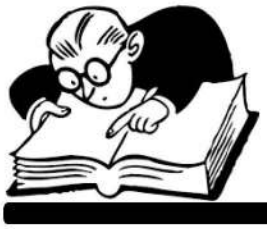
2- A stone of 5 Kg mass falls from 8 m height, what is its potential energy? And what is its kinetic energy? (At the start of falling-At height 2m-On reaching ground (consider gravity acceleration = 10 m/ s2).

3- An object has a kinetic energy 46 Joule and is moving at a speed 4 m/s. Find the object mass.

4- Find the weight of an object of potential energy 88 Joule when found at a height 11 m.

Best wishes 4 all

Mr.Mohamed



Final Revision

Mr. Ahmed Elbasha

(1) Write the scientific term :

1) The way by which the heat is transferred throw gasses and liquids. (.....)

2) An example of animal with external support. (.....)

3) The sum of potential energy and kinetic energy. (.....)

4) The basic classification unit of living organisms. (.....)

5) The result of combination between two or more atoms of different elements with constant weight ratios. (.....)

6) The gases that do not take part in the chemical reaction. (.....)

7) The stored energy in an object due to the work done on it. (.....)

8) It is the temperature at which a substance begins to change from a liquid state into a gaseous state. (.....)

9) It is a form of energy which transfers from a higher temperature object to a lower temperature object. (.....)

10) Animals have one pair of incisors in each jaw. (.....)

11) The pollution produced from the networks of wireless transmitters of cellular phones. (.....)

12) The measuring unit of energy (.....)

13) The positively charges particles in the nucleus of an atom. (.....)

14) The spaces that found among the molecules. (.....)

15) The modification in the behavior of a living organism at specific times of the day or year. (.....)

16) The branch of biology that searches for the similarities and differences among living organisms (.....)

17) A group of animals that have one pair of incisors in each jaw. (.....)

18) The temperature at which matter starts to change from solid to liquid. (.....)

19) Ability to do work or to make a change. (.....)

20) The ability of some living organisms to be hidden from enemies or to capture the prey (.....)

21) The limited amount of energy needed or loss to transfer an electron from an energy level to another. (.....)

22) The temperature at which a matter begin to change from the liquid state to gaseous state. (.....)

23) It is a basic classification unit for living organism. (.....)

24) A modification in a living organism or its body structure or even the biological function of its organs to become more adapted to the environmental conditions where it lives in. (.....)

25) The temperature at which matter changes from a solid phase into a liquid one. (.....)

26) The simplest pure form of a matter which can't be analyzed simpler. (.....)

27) The heat state of an object on which the transfer of heat from or to the object depends (.....)

28) The ability of some body organs and tissues to do a certain function . (.....)

29) A group of animals that have three pairs of jointed legs. (.....)

30) The fundamental building unit of matter that can take part in the chemical reaction. (.....)

31) Energy gained or lost to transfer an electron from one energy level to another. (.....)

32) Number of positive protons in nucleus of the atom. (.....)

33) Energy stored in the object due to the work done on the object. (.....)

34) Plants can't be distinguished into roots, stems and leaves. (.....)

35) The mass of unit volume of the substances. (.....)

36) Sum of protons and neutrons in a nucleus. (.....)

37) The work done during the motion of an object. (.....)

38) The simplest pure substance that could not analyzed into simpler form. (.....)

39) The fundamental unit for natural classifying system in living organisms. (.....)

40) It is a permanent resource of energy. (.....)

41) An amount of energy that gained or lost to transfer an electron from one energy level to another. (.....)

42) The way of transferring the heat through solids. (.....)

43) The sum of potential and kinetic energies of a body. (.....)

44) A group of terrestrial plants that reproduce by formation spores. (.....)

45) Invertebrates that are characterized by having number of jointed legs. (.....)

46) Energy is neither created nor destroyed, but it is converted from one form to another. (.....)

47) The smallest part of matter that can exist freely having the properties of matter. (.....)

48) The monoatomic liquid. (.....)

49) The atom that gains a quantum of energy. (.....)

50) A device changes solar energy to electric energy. (.....)

51) The plants which devour insects to get protein. (.....)

52) A modification in behavior , structure , biological function of a living organism's organs . (.....)

53) The smallest building unit of matter which can exist freely. (.....)

54) The ability of some living organisms to hide from their enemies. (.....)

55) The sum of positive protons and neutral neutrons in the nucleus of atom. (.....)

56) Volume measuring unit. (.....)

57) Plants that can't be distinguished into roots, stems and leaves. (.....)

58) The type of adaptation when birds migrate from one place to another. (.....)

59) the transfer of heat from hot object to another without any need for a material medium through which heat transfers. (.....)

60) A group of similar living organisms in shape that can reproduce to give birth of new fertile individuals. (.....)

61) A liquid used to keep sodium and potassium metals from air. (.....)

62) It is the ability to do work or to make a change. (.....)

63) The matter which doesn't take the shape of the container. (.....)

64) Amount of energy which an electron loses or gains to transfer from an energy level into another one . (.....)

65) The result of combination between two or more different elements with constant weight ratios. (.....)

66) Mass measuring unit. (.....)

67) An alloy which is used in making heating coils. (.....)

68) It is the heat condition which determines whether heat transfers from or to an object when it comes in contact with another. (.....)

69) Energy stored in the object due to the work done on the object. (.....)

70) It is the mass of unit volume of the substance. (.....)

✹(2) Choose the right answer:

1.The third energy level is saturated by ..... electrons.

a. 2 b. 18 c. 8

2.A substance is solid and can't be soften by heating .....

a. copper. b. sulphur. c. aluminum.

3.Chemical energy can be stored in .....

a. car battery. b. raising a load up wards.

c. stretched spring. d. car lamps.

4.The chemical activity of the element depends on the number of .....

a. neutrons. b. protons. c. electrons in the outer level. d. levels filled with electrons.

5.An element has 2 electrons in the (L) level, so its atomic number is .....

a. 2 b. 4 c. 6 d. 8

6.All of the following are active elements except .....

a. $_{1}H$ b. $_{6}C$ c. $_{7}N$ d. $_{18}Ar$

7.Cooking pans are made up of .....

a. iron only. b. aluminium only. c. stainless steel only. d. (b) and (c)

8.The property of electric conduction is distinguishing factor between .....

a. iron and copper. b. wood and plastic.

c. iron and wood. d. no correct answer.

9.An object of 20 N. weight and it is placed at a height of 5 m. , so its potential energy is ..... joules.

a. 50 b. 150 c. 100 d.200

10.If you sit down beside an electric heater, heat is transferred to you by .....

a. convection. b. radiation. c. conduction. d. convection & radiation.

11.Scorpion belongs to .....

a. insects. b. arachnids. c. myriapods. d .mammals.

12.Equal masses of different substances have ..... volumes.

a. different b. constant c. equal

13.When a substance sinks in water, that means its density is ..... the density of water.

a. equal to b. less than c. more than

14.The ..... matter doesn't take the shape of the container.

a. solid b. liquid c. gaseous

15.The molecule of oxygen is composed of ..... atom(s).

a. one b. two c. three

16.The particles which revolve around the nucleus of an atom of element are .....

a. neutrons. b. protons. c. electrons.

17..... are from the animals which don't have a body support.

a. Reptiles b. Snails c. Jellyfish

18.The number of energy levels in the heaviest atoms is .....

a. 7 b. 8 c. 32 d. 18

19.From inert gases .....

a. nitrogen. b. helium. c. oxygen. d. bromine

20.Heat transfers from Sun to Earth by .....

a. convection. c. conduction.

b. radiation. d. conduction and convection.

21.In car engine, ... energy of the fuel is changed into heat and mechanical energy.

a. chemical b. electric c. light d. solar

22.Amoeba, euglena and paramecium differ from each other in the .....

a. number of teeth. b. number of legs.

c. kind of support. d . way of movement.

23..... insect exactly looks like the plant branches.

a. Stick b. Beetle c . Leaf d. Locust

24..... is from teethless mammals.

a. Lion b. Cow c. Lizard d. Sloth

25..... is a permanent source of energy.

a. Wind b. Fuel c. Food d. The Sun

26.Electric energy is converted into sound energy in .....

a. car battery . b. car lamps. c. radio cassette. d. pendulum.

27.Taste property is a distinguishing factor between .....

a. copper and iron. b. vinegar and perfume. c. salt and sugar. d. gold and silver.

28..... belongs to the animals with no body support

a. Octopus b. Mussel c . Hedgehog d . Snake

29.Dynamo converts mechanical energy into energy .....

a. electrical b. nuclear c. solar d . chemical

30..... is a permanent source of energy

a. Wind b. Coal c. The Sun d . Water

31.Rat has .....

a. two pairs of incisors in each jaw. b. one pair of incisors in each jaw.

c. three pairs of incisors in each jaw. d . no correct answer.

32.The Sun is .....

a. resource of permanent energy. b. resource of non-permanent energy.

c. not an energy resource. d . (a) and (c).

33.In the radio cassette inside the car the .....

a. electric energy is converted into mechanical energy.

b. light energy is converted into heat energy.

c. electric energy is converted into kinetic energy.

d. electric energy is converted into sound energy.

34.Atom symbol of potassium element is .....

a. Hg b. Cu c. P d.K

35.Some substances need heat to get soften such as .....

a. coal. b. iron. c. sulphur. d. rubber.

36.Secreting sweat by skin is considered ..... adaptation.

a. structural b. functional c. behavioral d. no correct answer

37.An object of 10 N. weight is placed at 5 m. height, it has a potential energy .....

a. 50 joule. b. 150 joule. c. 100 joule. c. 200 joule.

38.The handles of cooking pots are made of .....

a. copper. b. aluminium. c. wood. d. iron.

39.The role of technological application is represented in .....

a. using energy resources and converting energy from form to another.
b. creating energy from nothing.
c. storing energy as its form is.
d. illustrating energy forms.

40.Solids have ..... intermolecular force.

a. strong b. weak c. medium d. no correct answer

41..... is an example for plants that reproduce by spores.

a. Pine b. Beans c. Vougheir d. Wheat

42.From the animals which don't have a body support is .....

a. snail. b.jellyfish. c. fish . d. cartilaginous fi sh.

43.Heat is transferred by convection through .....

a. liquids only . b. gases only . c. solid only. d. liquids and gases.

44.When the atomic number of element equals its mass number, this means that there is no .....

a. electrons. b. protons . c. neutrons. d. nucleus.

45.The third energy level in the atom contains ..... **electrons.**

a.2 b.18 c.8 d. 32

46.The colour property distinguishing factor between .....

a. flour and table salt. b. iron and gold. c. O_2 and CO_2 . d. salt and sugar.

47.The molecule of gaseous element that consists of one atom is .....

a. oxygen. b. hydrogen. c. helium. d. mercury.

48.Heat transfers through liquids by .....

a. conduction. b. convection.

c. radiation. d. convection and radiation.

49.The molecule of ammonia consists of ..... **atoms.**

a. 2 b. 6 c. 4 d. 1

50.In the rodent the number of incisors in the upper jaw is .....

a. one pair. b. two pairs. c. three pairs. d. none.

51.Heat transfers from Sun to Earth by .....

a. conduction. b. convection. c. radiation. d. no answer.

52.When the object is throw upward the ..... **of object decreases.**

a. mass b. heat c. potential energy d. kinetic energy

53.Spider belongs to .....

a. insects. b. arachnids. c. myriapods. d. vertebrates

54.The number of atoms is equal to the number of elements in ..... **molecule.**

a. water b. hydrogen chloride c. oxygen d . ammonia gas

55.Mammal animal that has one pair of incisors in each jaw .....

a. squirrel. b. rabbit. c. lion. d. no correct answer.

56.The nucleus of ..... **atom doesn't contain neutrons.**

a. neon b. hydrogen c. oxygen d . no correct answer

57.Heat transfers by ..... **through liquid and gas.**

a. conduction b. convection c. radiation d. no correct answer

58...... **is from the animals that make hibernation in winter.**

a. Desert snail b. Jerboa c. Frog

59.All of the followings belong to arachnids except .....

a. locust. b. scorpion. c. spider.

60.The electric lamp changes the ..... energy into light and heat energy.

a. sound b. electric c. mechanical

61.The smell property is a distinguishing factor between .....

a. iron and gold. b. wood and plastic. c. perfume and vinegar.

62.The energy level N is saturated by ..... electrons.

a. 8 b. 18 c. 32

63.The third energy level is saturated by ..... electrons.

a. 2 b. 10 c. 18 d. 8

64.Heating coils are made up of ..... alloy.

a. iron-copper b. nickel-iron c. chrome-copper d. nickel-chrome

65..... reproduce by forming spores.

a. Vougheir b. Pine c. Bean d. Wheat

66.Car engine changes at first chemical energy to ..... energy.

a. heat b. electric c. magnetic d. light

67.The electron is ..... charged particle.

a. positively b. negatively c. neutrally

68.The number of pairs of scorpion legs is .....

a. 4 b.3 c. 44

69.An object of weight 6 newton, moved to a height 5 m, its potential energy is .....

a. 30 b. 75 c. 11

70..... is the monoatomic liquid molecule.

a. Bromine b. Mercury c. Iodine

71..... is an example of plants that reproduce by seeds.

a. Adiantum b. Vougheir c. Bean

72.By increasing the kinetic energy of particles, their ..... increases.

a. weight b. temperature c. volume

73.The electric energy is converted into kinetic energy in .....

a. electric lamp. b. electric fan. c. electric heater.

74..... bird migrates in winter.

a. Quail b. Duck c. Sparrow

75.In the solar cell. the solar energy is converted into ..... energy.

a. kinetic b. light c. electric d . heat

76.Distance among molecules are very small in .....

a. water. b. copper. c hydrogen. d . oil.

77.Birds migration represents ..... **adaptation.**

a. anatomical b. functional c. structural d. behavioral

78.The number of electrons that saturates the level (K) is .....

a.8 b.2 c.32

79.Dynamo converts mechanical energy into ..... **energy.**

a. electric b. nuclear c. solar

80.The Sun is a ..... **source of energy.**

a. non-renewable b. renewable c. permanent d. all the previous

81.The density of petroleum oil is ..... **that of water.**

a. less than b. more than c. equal to d. no correct answer

82.Insectivorous plants cannot absorb the nitrogenous substances to make .....

a. carbohydrates. b. proteins. c. fats. d. vitamins.

83.Secretion of poison in some snakes is an example of ..... **adaptation.**

a. structural b. behavioral c. functional d. all of them

84.Positive charged particles in the nucleus of atom are .....

a. neutrons. b. protons. c. electrons.

85.Potassium is symbolized by .....

a.P b. K c. B

86.From gymnosperms plants: .....

a. wheat. b. pine plant. c. maize.

87.Density measuring unit .....

a.cm3. b. gm. c. gm./cm3

88.Heat is transferred by radiation through .....

a. liquids only. b. gases only. c. material media and non-material ones.

89.The monoatomic liquid is .....

a. Hg b. Ag c. Mg d.Br

90.The rule which is used to find the electronic configuration for the first four energy levels is .....

a. 22n b. $2n^2$ c. 2n d. n^2

91.An object of mass 1 kg moves at speed 4 m/s., so it has a kinetic energy= ..... **joule.**

a. 16 b. 8 c.64 d.4

92.The scorpion belongs to .....

a. insect. b. myriapods. c. arachnids. d. mammals.

93.Heat transfers from heater by .....

a. conduction and radiation. b. radiation and convection.

c. conduction and convection. d. radiation only.

94.As doubling height to which an object is raised from ground. so the .....

a. kinetic energy is increased to its double value.

b. potential energy is increased to 3 times.

c. potential energy is increased to its double value.

d. mechanical energy is increased to 4 times.

95.Energy is neither created nor destroyed, but it can be transformed into another form of energy. this law is known as law of .....

a. conservation of energy. b. conservation of matter.

c. kinetic energy. d. Earth's gravity.

96.The symbol which represents silver element is.....

a. S b. Si c .Au d. Ag

✹(3) Complete the following :

1. The liquid element its molecule is composed of one atom is ..... , while that composed of two atoms are .....
2. ..... and .....are teeth less mammals.
3. Heat is carried from the electric heater to our body by ..... and .....
4. Heat is transferred in gases by ..... , while transferred in solids by .....
5. From plants that have large leaves ..... and from that have small leaves.....
6. Secretion of sweat in humans is a ..... adaptation .
7. Hawks have ..... beaks to tear the prey, whereas ducks have ... . beaks to filter food from water.
8. Electrons have ..... charge, while protons have ..... charge.
9. A piece of metal its mass is 25 g. and its volume is 10 cm^3 , when it is placed in water it will ..... (water density 1 g/cm^3.)
10. Kinetic energy increases by increasing ..... and ..... of the object.
11. The density is directly proportional to ..... and inversely proportional to .....
12. Drosera and Dieonea are examples for .....
13. Substances are solids which cannot be soften if heated as ..... and .....
14. The networks of wireless transmitters of cellular phones cause ..... pollution but car exhaust causes ..... pollution.
15. Density is the ..... of unit volume of a substance and its measuring unit is.....
16. An alloy of ..... is used in making jewels, while an alloy of ..... is used in making coils.
17. Smallest part of the element that can take part in a chemical reaction is .....

18. The symbol of sodium atom is ..... while that of sulphur atom is .....

19. ..... is the basic unit of classification in living organisms.

20. The front limbs of dolphins are modified into ..... to take the role of .....

21. ..... and ..... are from micro-organisms .

22. Heat is transferred through liquids by ..... , while through space by .....

23. The ..... belongs to insects, whereas the ..... belongs to arachnids.

24. In the dynamo, ... energy changes into ..... energy.

25. The cockroach belongs to ..... , whereas the scorpion belongs to ..... although both of them are arthropods.

26. Heat is transferred through air by ..... and .....

27. The monoatomic liquid is ..... , while ..... is diatomic liquid.

28. Some solutions are good conductors of electricity as ..... solution, while some solutions don't conduct electricity as ..... solution.

29. Hawks have ..... beaks to tear the prey, whereas ducks have ..... beaks to filter food from water.

30. Holders of light bulbs are painted from time to time in order to protect it from .....

31. The hydrogen molecule is consisted of ..... atoms, while the argon molecule (inert gas) is consisted of ..... atom.

32. If the speed of an object increases into the double, its kinetic energy increases into.....

33. The cockroach belongs to ....., whereas the scorpion belongs to .....

34. ..... is from the plants that reproduce by formation of spores, while ..... is from the plants that reproduce by formation of seeds inside cones.

35. Mechanical energy = ... + ...

36. The whale's front limbs are modified into ..... to take the role of .....

37. ..... and ..... are teethless mammals.

38. When a body raised up, the potential energy ..... , while the kinetic energy.....

39. ..... and ..... are used in classifying plants.

40. The matter is composed of small units called ..... , while these units are consisted of smaller units called .....

41. Frictions turns ..... energy into ..... energy.

42. The chemical symbol of iron element is ..... , while S is the chemical symbol for ..... element.

43. The horse foot ends with ..... and this type of ..... adaptation .

44. The water molecule consists of one atom from ..... and two atoms from

45. ..... and ..... are considered as forms of energy.

46. The oxygen molecule consists of two ..... atoms, while the ammonia molecule consists of one ..... atom and three hydrogen atoms.

47. Limbs are modified into wings in bats for ....., while into paddles in whales and dolphins for ..... in water.

48. The attraction force among the molecules of copper is ..... than that between molecules of water is .....

49. The heat transfers by convection through ..... and ..... materials.

50. The matter in ..... state has a definite shape and definite volume.

51. In the simple electric cell, ... energy is converted into ..... energy.

52. The pendulum can convert potential energy into ..... energy.

53. Liquid element its molecule is composed of one atom is ..... , while that composed of two atoms is .....

54. ..... is the amount of energy gained or lost to transfer an electron from an energy level to another.

55. The electron has ..... charge, while the proton has ..... charge .

56. From the examples of dicotyledon plants are ..... and .....

57. ..... is the way of transferring heat through space.

58. ..... is an animal from edentates.

59. ..... is the sum of protons and neutrons.

60. ..... is the sum of potential and kinetic energy

61. The liquid that is consists of one atom is .....

62. In dry electric cell, ... energy changes into ..... energy.

63. At highest point of the pendulum, the ..... energy is maximum.

64. In solar cell, ... energy changes into ..... energy.

65. The animals with external support such as ..... and ..... .

66. Silver symbol is ..... whereas sodium symbol is .....

67. The potential energy of an object depends on ..... and .....

68. ..... and ..... are very active metals.

69. An animal which has no body support such as.....

70. The atom nucleus contains ..... and .....

71. Scolopendra belongs to .....

72. Plants reproduce by formation of seeds divided into ..... and .....

73. ..... has an internal support, while ..... has an external support.

74. When an object is launched upwards. its speed .....

75. ..... is soft at room temperature, while ..... can't be soften.

76. In the simple cell, ... energy changes into ..... energy.

77. The symbol of potassium atom is ..... , while the symbol of silver atom is .....

78. ..... is from very active metals but ..... is from inactive metals.

79. Friction turns kinetic energy into ..... energy.

80. The whale front limbs are modified into .....

81. Scolopendra belongs to ..... , whereas spider belongs to .....

82. When a body raised up, the potential energy ..... , while the kinetic energy .....

83. Silver symbol is ..... ,whereas sulphur symbol is .....

84. The number of energy levels in the largest known atom is .....

85. The molecule of water consists of two ..... atoms and one ..... atom.

86. Kinetic energy = $\frac{1}{2}$ x ..... x .....

87. Energy is the ability to do ..... and its measuring unit is .....

88. Insects have ..... pairs of jointed legs

89. Plants may carry large-sized leaves such as ..... and some has small-sized leaves such as .....

90. In the melting process, solid molecules ..... energy and change into ..... state.

91. Birds migration is ..... adaptation.

92. The energy stored in the food is ..... energy, while ..... energy is produced from the dry cell.

✹(4) Correct the underlined words:

1	The solar cell changes the solar energy into **heat** energy.	(.....)
2	Vougheir is the fern plant that reproduces by formation of **seeds**.	(.....)
3	Heat is transferred from the Sun to the Earth by **convection** .	(.....)
4	Banana tree carries **small-sized** leaves.	(.....)
5	Maize is from **dicotyledonous** plants.	(.....)
6	Octopus is from **supported** body animals.	(.....)
7	A horse hoof is an example on **behavioral** adaptation.	(.....)
8	**Octopus** is from myriapods.	(.....)
9	**Hydrogen** is from inert gases.	(.....)
10	**Bromine** is the only liquid metal that its molecule consists of one atom.	(.....)
11	**Kinetic** energy is stored in the object due to a work done on it.	(.....)
12	In rodents the incisors number in the lower jaw is **three pairs.**	(.....)
13	Some animals undergo **hibernation** to overcome the high temperature.	(.....)
14	Measuring unit of weight is **joule**.	(.....)
15	**Gold** is from very active metals .	(.....)
16	**Electric energy**= Potential energy+ Kinetic energy.	(.....)
17	**Wind** is a permanent source of energy.	(.....)
18	**Ammonia** consists of one oxygen atom and two hydrogen atom.	(.....)
19	**Lagomorphs** have one pair of incisors in each jaw.	(.....)

20	**Mass number** is known as the number of protons existed in an atom nucleus of an element.	(.....)
21	An atom third level is saturated with **8** electrons.	(.....)
22	The liquid element which its molecule consists of two atoms is **mercury**.	(.....)
23	Transfer of heat by **conduction** does not need a material medium.	(.....)
24	The relation $2n^2$ determines the number of **neutron** in energy level.	(.....)
25	The networks of cellular phone cause **noise** pollution.	(.....)
26	**Copper** rode is the negative pole in the simple electric cell .	(.....)
27	Frogs undergo **aestivation** in winter to overcome the decreasing of temperature.	(.....)
28	**Boiling** point is the temperature at which matter changes from solid into liquid state.	(.....)
29	**Wood** is a good conductor of heat and electricity.	(.....)
30	The mechanical energy is the sum of **heat** energy and **light** energy.	(.....)
31	The density equals mass divided **area**.	(.....)
32	Heat is transferred through the space by **conduction**.	(.....)
33	From plants reproduce by formation of spores **palms** plant.	(.....)
34	Heat transfers through solids by **convection**.	(.....)
35	Work-= force x **time**.	(.....)
36	Bean plant belongs to **gymnosperms** plants .	(.....)
37	The molecules of inert gases consist of **two** atoms.	(.....)
38	Friction turns the mechanical energy into **magnetic** energy.	(.....)
39	Iron and copper are **bad** conductors of heat.	(.....)

40	The rat belongs to the **lagomorphs**.	(.....)
41	The kinetic energy **decreases** by increasing the mass and speed of objects.	(.....)
42	The chemical symbol of silver is **Si**.	(.....)
43	**Ammonia** molecule consists of two atoms of hydrogen and one atom of oxygen.	(.....)
44	The electron can transfer to a higher energy level if it **loses** energy.	(.....)
45	**Rat** is considered from teethless mammals.	(.....)
46	The **camel's** limbs end with strong hoofs.	(.....)
47	Carbon is symbolized by **Ca**.	(.....)
48	Animals with external support are such as **reptiles**.	(.....)
49	Resource of permanent energy is **nuclear energy.**	(.....)
50	Aluminum is from **liquid** elements.	(.....)
51	The atom mass is concentrated inside the **electrons**.	(.....)
52	Measuring unit of weight is **joule**.	(.....)
53	**Gold** is from very active metals.	(.....)
54	The relation ($2n^2$) is not applied to energy level higher than **5^{th}** level.	(.....)
55	In solar cell the solar energy is changed into **magnetic** one.	(.....)
56	In simple cell the positive pole is a rode of **zinc**.	(.....)
57	Secreting poison in snakes is considered as a **behavioral** adaptation.	(.....)
58	Insectivorous plants catch and pounce insects to get **starch**.	(.....)

✹(5) Give reason for:

1.The motion of the children's swing is like that of the pendulum.

.....

2.The atom is electrically neutral.

.....

3.Technology has negative effects in the environment.

.....

4.The rule ($2n^2$) is not applied on the energy levels greater than four.

.....

5.Wood piece floats on water surface

.....

6.Equal volumes of different substances have different masses.

.....

7.Camel's legs end with broad pad.

.....

8.Some plants catch and feed on insects.

.....

9.The freezer is found at the top of fridge.

.....

10. The volume of a mixture of water with alcohol is less than sum of their volumes before being mixed together.

.....

11. Neon is an inert gas.

.....

12. Heater is put at the bottom of the room.

.....

13. Spiders are from arachnids.

.....

14. Water is not used to put out petroleum fire.

.....

15. Handles of cooking pans are made up of wood or plastic.

.....

16. Solar heater is preferred to gas heater.

.....

17. It is easy to divide an amount of water into smaller parts.

.....

18. Spider is not from insects.

.....

19. Forelimbs of whale are modified into paddles.

.....

20. The kinetic energy will increase four times as the speed of the moving object is doubled.

.....

21. Car exhaust is considered from the negative effects of technological applications.

.....

22. Inert gases can't share in chemical reactions.

.....

23. Camel limbs end in a thick flat pad .

.....

24."K" energy level is filled with electrons before "L" energy level

.....

25. The predatory birds have sharp and strong crocked beak .

.....

26. Piece of iron sinks in water.

.....

27. On adding 50 cm^3 of alcohols to 50 cm^3 of water the total volume not equal 100 cm^3

.....

28. Frogs hibernate in winter.

.....

29. The nucleus of the atom is positively charged.

.....

30. Some animals undergo hibernation.

.....

31. There are front teeth extending outward in hedgehog .

.....

✹(6) What happen if:

1. Three atoms of hydrogen combine with one atom of nitrogen.
.....
2. An object is thrown upwards.
.....
3. Doubling the weight of an object (concerning its potential energy).
.....
4. Using water in putting out petrol fires.
.....
5. Leaving a piece of iron exposed to air.
.....
6. Friction of the bicycle wheels to a rough surface.
.....
7. If the front limbs of the bat are not modified into wings.
.....
8. The front teeth of hedgehog are not extending outwards.
.....
9. Doubling the height of an object (concerning its potential energy).
.....
10. Dipping two different metals connected by copper wire in an acidic solution.
.....
11. The electron gains a quantum of energy.
.....
12. The pendulum passes its rest position (concerning potential and kinetic energy).
.....
13. Rubbing your hands together.
.....
14. Friction between the frames of bicycle's wheel with the brake.
.....
15. A liquid substance is heated.
.....
16. You open a perfume bottle in a closed room for a while.
.....
17. Putting of a drop of ink in water.
.....
18. The bones of the front limbs and fingers of monkey are not elongated.
.....
19. You inserted two different metallic rods in a lemon connected by a wire.
.....
20. Using water in putting out petrol fires.
.....

✹(7) Put (√) or (X) :

1. In solar cells, the solar energy is converted into heat energy. ( )
2. The intermolecular spaces among molecules of solids very large. ( )
3. Scorpion has three pairs of jointed legs. ( )
4. Heating coils are made up of nickel-chrome alloy. ( )
5. Temperature is directly proportional to the kinetic energy of particles. ( )
6. Intermolecular spaces are tiny in solids. ( )
7. Insectivorous plants can absorb nitrogenous substances from insects. ( )
8. From substances that float on the surface of water is copper. ( )
9. Molecules of the same substance are different from each other. ( )
10. Work done = Force x Displacement. ( )
11. The electrons are distributed to fill the "K" level before filling the "L" level. ( )
12. Argon atom ($_{18}Ar$) has four energy levels . ( )
13. The melting point of wax is equal to the melting point of table salt. ( )
14. In the electric cell, the electric energy is converted into chemical energy. ( )
15. The energy level "K" has the highest energy. ( )
16. The fuel inside the car is similar to the food inside the body of a living organism. ( )
17. Heat is transferred in solid materials by radiation. ( )
18. When air is cooled, density decreases, so it falls down. ( )
19. Gymnosperms are classified into monocotyledon and dicotyledon plants. ( )
20. In solar cells, the solar energy is converted into heat energy. ( )
21. Angiosperms are called flowering plants. ( )
22. The motion of gaseous molecule is limited. ( )
23. The distance among solid molecules is very large. ( )
24. In car lamps, electric energy changes into light energy. ( )
25. The compound consists from a combination of atoms of one element. ( )
26. bird activity during the day and the bat during night is from functional adaptation. ( )
27. Iron rusts when it is exposed to dry air. ( )

28. As we go further from the nucleus , the energy of the energy level decreases.	( )
29. Mercury is a liquid element that its molecule composed of one atom.	( )
30. Scolopendra and euglena are from myriapods.	( )
31. Secreting poison in snakes is a behavioral adaptation.	( )
32. Amoeba is from unicellular micro-organisms.	( )
33. Oxygen gas from monoatomic active gases.	( )
34. Gymnosperms are flowering plants.	( )
35. Heat is transferred through solids by conduction.	( )
36. Inert gases are monoatomic.	( )
37. In solar cells, the solar energy is converted into heat energy.	( )
38. Jewels are made up of copper-gold alloy.	( )
39. Insectivorous plants get the nitrogenous substances through photosynthesis.	( )
40. Angiosperms are flowering plants.	( )
41. The birds activity during the daylight is considered a functional adaptation.	( )
42. Friction turns mechanical energy to electric energy.	( )
43. Euglena from multicellular living organisms.	( )
44. The transfer of heat through copper is by conduction.	( )
45. Water is used to put out petrol fires.	( )
46. Chemical energy can be stored in stretched spring.	( )
47. Fuel in a car as food for a man.	( )
48. The measuring unit of potential energy is the joule.	( )
49. The hydrogen molecule consists of two hydrogen atoms.	( )
50. The intermolecular forces are very strong in gases.	( )
51. In the car dynamo electric energy is changed into kinetic energy.	( )
52. Bean plant is a dicotyledon plant.	( )
53. The mass number is the number of protons and electrons.	( )
54. Potential energy of an object decreases by increasing its height.	( )
55. The motion of gases is completely free.	( )

✹(8) What is the function (use) of ... ?

1. Simple electric cell.

.....

2. Nickel-chrome alloy.

.....

3. The palm legs in geese.

.....

4. The front teeth of hedgehog.

.....

5. The thick flat pad at the end of camel's limb.

.....

6. Gold-copper alloy.

.....

7. Car dynamo

.....

8. The sharp and crooked beaks in hawks.

.....

✹(9) Give one difference between each of the following :

1. Bean plant and maize plant.

.....

.....

2. Neutron and proton.

.....

.....

3. Fish and snail.

.....

.....

4. Intermolecular forces in solids and in gases.

.....

.....

5. Beans and wheat.

.....

.....

6. Ammonia molecule and nitrogen molecule.

.....

.....

7. Rabbit & squirrel.

.....

.....

8. Rodents and lagomorphs.

.....

.....

9. Element and compound.

.....

.....

10. Potential and kinetic energies of an object.

.....

.....

11. Potassium and gold. (according chemical activity).

.....

.....

12. Bat and whale (according to the adaptation of the front limbs).

.....

.....

13. Kinetic energy of an object at maximum height and on reaching the ground.

.....

.....

14. Insects and arachnids. (According to the number of legs)

.....

.....

15. Hydrogen and Helium. (According to the number of atoms in its molecule)

.....

.....

✹(10) What is meant by ... ?

1. Boiling point.

.....

.....

2. Heat energy.

.....

.....

3. Matter.

.....

.....

4. Kinetic energy.

.....

.....

5. Adaptation.

.....

.....

6. Transfer of heat by radiation .

.....

.....

7. The law of conservation of energy.

.....

.....

8. Quantum.

.....

.....

9. The excited atom.

.....

.....

10. Atom.

.....

.....

11. Species.

.....

.....

12. The melting point of ice= zero degree Celsius.

.....

.....

13. The kinetic energy of an object= 400 joule.

.....

.....

14. Aestivation.

.....

.....

15. Temperature.

.....

.....

16. Mass number of sodium is 23.

.....

.....

17. The melting point.

.....

.....

18. Mechanical energy.

.....

.....

19. The density of water is 1 gm/cm^3

.....

.....

✹(11) Mention one example for each of the following :

1. An animal with external supported body.
.....
2. A teethless animal.
.....
3. A plant that reproduces by spores.
.....
4. A mammal which its front limbs are modified into wings.
.....
5. Molecules of gaseous elements are composed of one atom.
.....
6. A device converts electric energy into mechanical energy.
.....
7. Micro-organisms.
.....
8. Camouflage in insects.
.....
9. Aestivation in rodents.
.....
10. A device changes kinetic energy into electric energy.
.....
11. A permanent source of energy.
.....
12. A device that produces heat energy.
.....
13. A very active metal.
.....
14. A gas its molecule consists of two similar atoms .
.....
15. Solid substance has low melting point.
.....
16. Insectivorous plants.
.....
17. Unicellular organism.
.....
18. Alloy used in making heating coils.
.....
19. A plant reproduces by formation of spores.
.....
20. The liquid element consists of two atoms.
.....
21. A solution that is good conductor of electricity.
.....
22. Very active metal.
.....

✹(12) Problems :

1

Write the electronic configuration :

1. $^{23}_{11}Na$ 2. $^{20}_{10}Ne$

Then determine each of the following :

1. Atomic number.
2. Mass number.
3. Number of electrons.
4. Number of Neutrons.
5. Number of energy levels.
6. Chemical activity.

.....

.....

.....

.....

2

Transfer the following table to your answer paper and fill it :

Element symbol	Atomic number	Mass number	Number of protons	Number of electrons	Number of neutrons
$^{14}_{7}N$	.....	.....	.....	.....	.....
$^{12}_{6}C$	.....	.....	.....	.....	.....

.....

.....

.....

.....

3

Find the weight of an object its mass 50 kg, knowing that the Earth's gravitational acceleration is 9.8 m/sec^2

.....

.....

.....

.....

4

On determining iron density using a piece of iron of mass 78 gm. The piece is immerged in 100 cm^3. of water, the water increases up to 110 cm^3. Calculate iron density.

.....

.....

.....

.....

5

Draw a diagram to show the simple electric cell.

.....

.....

.....

.....

.....

6

A ball was launched upwards and vertically at a speed 3 m/sec. up to a height 4m. **Calculate the mechanical energy** (work done) of the ball if its weight is 5 newton and has a mass of 0.5 Kg.

.....

.....

.....

.....

7

(A)	(B)
1. Migration of quail bird	a. Scorpion.
2. Soft bodies	b. Mosquitoes.
3. Insects	c. Behavioral adaptation.
4. Myriapods	d. Armadillo.
	e. Scolopendra.
	f. Earthworm.

1. **2.** **3.** **4.**

8

Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Wind generator	a. is a source of nuclear energy.
2. Radio cassette	b. is a source of heat energy.
3. Electric lamp	c. is a source of electric energy.
4. Oven	d. is a source of light energy.
	e. is a source of sound energy.

1. **2.** **3.** **4.**

9

Your classmate has seen a bird, he doesn't knows this bird's name but he managed to describe it as a bird with a sharp beak and the legs end in fingers with strong claws. According to your classmate story, answer the following questions :

1. What is the type of adaptation in both the beak and leg of this bird ?
2. How many fingers are in each leg ?
3. What type of food does this bird feed on ?

.....

.....

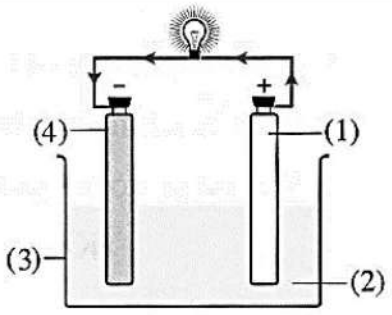
.....

.....

10

From the opposite figure answer the following questions :

1. Mention the name of the opposite device.
2. Label the fig.
3. Mention the idea of its operation.



.....

.....

.....

.....

11

In an experiments to determine water density, the following results are recorded :

1. Mass of an empty glass beaker= 56 g.
2. Mass of the beaker containing water = 156 g.
3. Volume of the water measured by a graduated cylinder= 100 cm^3.

Calculate the water density.

.....

.....

.....

.....

12

Draw the electronic configuration for each of the following elements :

1. $^{40}_{18}Ar$ 2. $^{7}_{3}Li$ 3. $^{24}_{12}Mg$ 4. $^{19}_{9}F$

.....

.....

.....

.....

13

Choose from column (B), what suits column (A) :

(A)	(B)
1. Banana plant	a. is from gymnosperms.
2. Wheat plant	b. has small sized leaves.
3. Pine plants	c. is from monocotyledon.
4. Molukhiyah plant	d. is from dicotyledon.
	e. has large sized leaves.

1. **2.** **3.** **4.**

14

When a piece of iron its mass 156 gm. is put in a graduated cylinder containing 100 cm^3 of water the reading becomes 120 cm^3 **Calculate the density of iron.**

.....

.....

.....

15

Write the electronic configuration of the following atoms :

1. $^{23}_{11}Na$ 2. $^{40}_{20}Ca$

.....

.....

.....

.....

16

Write the electronic configuration of the following elements, then :

1. $^{7}_{3}Li$ 2. $^{24}_{12}Mg$

- Find the number of electrons in the outermost energy level in each atom.
- Calculate the number of neutrons in each atom.

.....

.....

.....

.....

17

State the energy transformation in each of the following :

1. Dynamo. 2. Electric lamp. 3. Motor. 4. Electric bell.

.....

.....

.....

.....

18

Write the electron configuration of the following :

1. $_{11}Na$ 2. $_{17}Cl$ 3. $_{12}Mg$ 4. $_{3}Li$

.....

.....

.....

19

Calculate the potential energy of an object its weight is 20 N., placed at 5 m height from the ground.

.....

.....

.....

20

Calculate the potential energy of an object of weight 50 newtons that placed at height 5 meters.

.....

.....

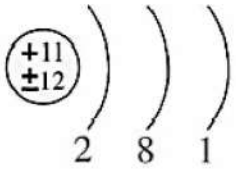
.....

21

The figure represents the electronic configuration of the atom of an elements

Determine :

1. The atomic number.
2. The mass number.
3. The number of energy levels.
4. The number of electron in the last energy level.



.....

.....

.....

22

Match from column (B) what is suitable for column (A) :

(A)	(B)
1. Chameleon	a. reproduce by formation of spores.
2. Voughair	b. colours itself with the dominant colours of surrounding environment to capture the prey.
3. The jerboa	c. from the insectivorous plants.
4. Drosera	d. undergoes aestivation in summer to escape from high temperature.
5. Rat	e. is an example of rodents.

1. 2. 3. 4. 5.

23

A force of 20 newton acts on a body to move it a distance 1.5 m. in the same direction of force. **Calculate the work done.**

.....

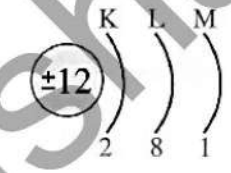
.....

.....

24

Look at the opposite figure, then answer :

1. Find number of protons.
2. Find the mass number.
3. Find the atomic number.
4. Find this element activity.



.....

.....

.....

25

Write electronic configuration for :

1. $_{19}K$ 2. $_{9}F$ 3. $_{13}Al$ 4. $_{10}Ne$

.....

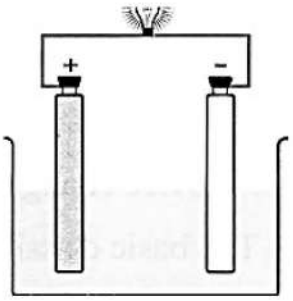
.....

.....

.....

26

1. The name of the opposite device is .....
2. The positive pole is .....
3. The negative pole is .....
4. The liquid in the basin is .....



.....

.....

.....

.....

Model Answer

(1) Write the scientific term :

1. Convection
2. Snail
3. Mechanical energy
4. Species
5. Compound
6. Inert gas
7. Potential energy
8. Boiling point
9. Heat energy
10. Rodents
11. Electromagnetic pollution
12. Joule
13. Protons
14. Intermolecular space
15. Behavioral adaptation
16. Taxonomy
17. Rodent
18. Melting point
19. Energy
20. Camouflage
21. Quantum
22. Boiling point
23. Species
24. Adaptation
25. Melting point
26. Element
27. Temperature
28. Functional adaptation
29. Insect
30. Atom
31. Quantum
32. Atomic number
33. Potential energy
34. Algae
35. Density
36. Mass number
37. Kinetic energy
38. Element
39. Species
40. Sun
41. Quantum
42. Conduction
43. Mechanical energy
44. Ferns
45. Arthropods
46. Conservation law of energy
47. Molecule
48. Mercury
49. Excited atom
50. Solar cell
51. Insectivores plants
52. Adaptation
53. Molecule
54. Camouflage
55. Mass number
56. Cm^3
57. Algae
58. Behavioral adaptation
59. Radiation
60. Species
61. Kerosene
62. Energy
63. Solid
64. Quantum
65. Compound
66. Gram
67. Nickel-chrome
68. Temperature
69. Potential
70. Density

(2) Choose the right answer:

1. B
2. B
3. A
4. C
5. B
6. D
7. D
8. C
9. C
10. D
11. B
12. A
13. C
14. A
15. B
16. C
17. C
18. A
19. B
20. B
21. B
22. D
23. A
24. D
25. D
26. C
27. C
28. A
29. A
30. C
31. B
32. A
33. D
34. D
35. B
36. B
37. A
38. C
39. A
40. A
41. C
42. B
43. D
44. C
45. B
46. B
47. C
48. B
49. C
50. A
51. C
52. D
53. B
54. B
55. A
56. B
57. B
58. C
59. A
60. B
61. B
62. C
63. C
64. D
65. A
66. A
67. B
68. A
69. A
70. B
71. C
72. B
73. B
74. A
75. C
76. B
77. D
78. B
79. A
80. C
81. A
82. B
83. C
84. B
85. B
86. B
87. A
88. C
89. A
90. B
91. B
92. C
93. B
94. C
95. A
96. D

✹(3) Complete the following :

1. Mercury – bromine
2. Sloth – armadillo
3. Convection – radiation
4. Convection – conduction
5. Banana – molokhiya
6. Functional
7. Sharp – wide
8. Negative – positive
9. Sink
10. Mass – speed
11. Mass - Volume
12. Insectivorous plant
13. Sulfur – coal
14. Electromagnet – chemical
15. Mass – gm/cm^3
16. Gold-copper - nickel-chrome
17. Atom
18. Na – S
19. Species
20. Paddle – swimming
21. Amoeba – euglena
22. Convection – radiation
23. Ant – spider
24. Kinetic – electric
25. Insect – arachnid
26. Convection – radiation
27. Mercury – bromine
28. Salt – sugary
29. Sharp – wide
30. Rust
31. Two – one
32. 4 times
33. Insect – arachnid
34. Voughair – pine
35. Kinetic + potential
36. Paddle – swimming
37. Sloth – armadillo
38. Increase – decrease
39. External shape – way of reproduction
40. Molecule – atom
41. Kinetic – heat
42. Fe – sulfur
43. Strong hoofs – structural
44. Oxygen – hydrogen
45. Heat – light
46. Hydrogen - Nitrogen
47. Flying – swimming
48. Strong – weak
49. Liquid – gas
50. Solid
51. Chemical – electric
52. Kinetic
53. Mercury – bromine
54. Quantum
55. Negative – positive
56. Pea – bean
57. Radiation
58. Sloth
59. Mass no.
60. Mechanical energy
61. Mercury
62. Chemical – electric
63. Potential
64. Solar – electric
65. Snail – mussel
66. Ag – Na
67. Weight – height
68. Sodium – potassium
69. Jelly fish
70. Proton – neutron
71. Myriapods
72. Gymnosperm – angiosperm
73. Fish – snail
74. Decrease
75. Rubber – carbon
76. Chemical – electric
77. K – Ag
78. Sodium – silver
79. Heat
80. Paddles
81. Myriapods - arachnid
82. Increase – decrease
83. Ag – S
84. Seven
85. Hydrogen – oxygen
86. $M * V^2$
87. Work – joule
88. Three
89. Banana – molokhyia
90. Gain – liquid
91. Behavioral
92. Chemical – electric

✹(4) Correct the underlined words:

1. Electric
2. Spores
3. Radiation
4. Large size
5. Monocotyledon
6. Soft bodies
7. Structural
8. Julius
9. Helium
10. Mercury
11. Potential
12. One pairs
13. Aestivation
14. Newton
15. Sodium
16. Mechanical
17. Sun
18. Water
19. Rodents
20. Atomic number
21. 18
22. Bromine
23. Radiation
24. Electrons
25. Electromagnetic
26. Zinc
27. Hibernation
28. Melting
29. Iron
30. Kinetic – potential
31. Volume
32. Radiation
33. Pine
34. Conduction
35. Displacement
36. Angiosperm
37. One
38. Heat
39. Good
40. Rodents
41. Increase
42. Ag
43. Water
44. Gain
45. Sloth
46. Horse
47. C
48. Snail
49. Sun
50. Solid
51. Nucleus
52. Newton
53. Sodium
54. 4^{th}
55. Electric
56. Copper
57. Functional
58. Protein

✹(5) Give reason for:

1. Because in both of them, the potential energy and kinetic energy are interchanged
2. Because the number of negative electrons which revolve around the nucleus is equal to the number of positive protons in the nucleus.
3. Because some of technological applications cause environmental pollution as Electromagnetic pollution, Noise pollution. and Chemical pollution of air, water and soil.
4. Because the atom becomes unstable if the level contains more than 32 electrons.
5. Because the density of wood is less than that of water
6. Because the difference in density.
7. To enable the camel wandering through the hot desert sand
8. To absorb the nitrogenous substances that their bodies to make protein
9. Because when air is cooled, its density increases, so it falls down to cool the food in the refrigerator (or the room) and the hot air rises up to be cooled again and so on
10. Because some molecules of alcohol enter the intermolecular spaces among water molecules
11. Because the outermost energy level of argon atom is completely filled with electrons (contains 8 electrons).
12. Because when air around the heater is heated its density decreases so it rises up to warm the room, while the cold air falls down to be heated again and so on.
13. Because they are arthropods that have four pairs of jointed legs
14. Because the density of petrol is less than that of water so, petrol floats on water surface and water doesn't put out the petrol fires
15. Because each of them is a bad conductor of heat
16. Because solar energy is a clean source of energy which doesn't pollute the environment
17. Because there are weak attraction forces among water molecules
18. Because they are arthropods that have four pairs of jointed legs
19. To perform the function of swimming and diving in water.
20. Because the kinetic energy of a moving body is directly proportional to the square of its speed.
21. Because it causes chemical pollution of air.
22. Due to filling of their outermost energy levels with electrons
23. To enable the camel wandering through the hot desert sand
24. Because the energy of (K) level is less than that of (L) level
25. To tear their prey's flesh
26. Because the density of iron is more than that of water
27. Because some molecules of alcohol occupy the intermolecular spaces among water molecules
28. To overcome the decrease in temperature
29. Because it contains protons which are positively charged and neutrons which are electrically neutral
30. To overcome the decrease in temperature
31. To capture insects.

✹(6) What happen if:

1. Ammonia molecule is formed
2. Its potential energy increases
3. Its potential energy is doubled
4. The petrol floats on water surface, so the fires don't put out.
5. It rusts due to its reaction with atmospheric oxygen
6. The mechanical energy changes into heat energy by friction
7. They become unable to fly.
8. It is unable to capture insects.
9. Its potential energy is doubled.
10. An electric current flows through the wire.
11. It transfers to a higher level and the atom becomes excited atom
12. Its kinetic energy is maximum, while its potential energy is minimum
13. The mechanical energy changes into heat energy by friction
14. The mechanical energy changes into heat energy by friction
15. Its molecules gain more energy and their speed increases and at the boiling point some of them overcome the intermolecular forces and the intermolecular spaces increase, so they escape in the form of vapour.
16. The odour of the perfume spreads all over the room
17. The colour of ink spreads through all the water
18. They become unable to climb trees and catch objects
19. An electric current flows through the wire.
20. The petrol floats on water surface, so the fires don't put out

✹(7) Put (√) or (X) :

1. (X)	12. (X)	23. (X)	34. (X)	45. (√)
2. (X)	13. (X)	24. (√)	35. (√)	46. (X)
3. (X)	14. (X)	25. (X)	36. (√)	47. (√)
4. (√)	15. (X)	26. (X)	37. (X)	48. (√)
5. (√)	16. (√)	27. (X)	38. (√)	49. (√)
6. (√)	17. (X)	28. (X)	39. (X)	50. (X)
7. (√)	18. (X)	29. (√)	40. (√)	51. (X)
8. (X)	19. (X)	30. (X)	41. (X)	52. (√)
9. (X)	20. (X)	31. (X)	42. (X)	53. (X)
10. (√)	21. (√)	32. (√)	43. (X)	54. (X)
11. (√)	22. (X)	33. (√)	44. (√)	55. (√)

✹(8) What is the function (use) of ... ?

1. To convert chemical energy into electric energy
2. Used in making nickel-chrome
3. To help them in swimming.
4. To capture insects
5. To enable the camel wandering through the hot desert sand.
6. Used in making jewels
7. To convert kinetic energy into electric energy
8. To tear the preys flesh .

✹(9) Give one difference between each of the following :

1	Bean plant	maize plant.
Type	dicotyledon	monocotyledon
2	**Neutron**	**proton**
charge	Neutral	Positive
3	**Fish**	**snail**
Support	Internal support	External support
4	**solid**	**Gas**
Intermolecular forces:	Very strong.	Very weak
5	**Beans**	**wheat**
Type	dicotyledon	monocotyledon
6	**Ammonia molecule**	**nitrogen molecule.**
no. of atoms	Four atoms.	Two atoms.
7	**Rabbit**	**squirrel**
Type	Lagomorphs	Rodents
8	**Rodents**	**lagomorphs**
Examples:	squirrel.	Rabbit.
9	**Element**	**compound**
Definition	It is the simplest pure form of matter which can't be analyzed chemically into simpler form by simple chemical methods	It is a substance which is formed from combination of atoms of two or more different elements with constant weight ratios
10	**Potential**	**kinetic**
Factors affecting it :	•Weight of the body. • Height from the ground.	• Mass of the body. •Speed of the body.
11	**Potassium**	**gold**
Chemical activity :	Active	Inactive
12	**Bat**	**whale**
Adaptation of upper limbs	wings	paddles
13	**maximum height**	**on reaching the ground**
Kinetic energy	zero	maximum
14	**Insects**	**arachnids**
No. of jointed legs :	3 pairs.	4 pairs.
15	**Hydrogen**	**Helium**
No of atoms	2	1

✹(10) What is meant by ... ?

1. It is the temperature at which the matter begins to change from the solid state to the liquid state.
2. It is a form of energy which is transferred from an object of higher temperature to that of lower temperature
3. It is anything that has a mass and a volume.
4. It is the work done during the motion of an object.
5. It is a modification of a living organism's behaviour, body structure, or organs biological functions to become more adapted to the environmental conditions where it lives in.
6. It is the transfer of heat from a hot object to another without any need for a material medium through which heat transfers.
7. Energy is neither created nor destroyed, but it is converted from one form to another.
8. It is the amount of energy lost or gained by an electron when it transfers from one energy level to another.
9. It is the atom that gains a quantum of energy.
10. It is the fundamental building unit of matter.
11. It is the basic classification unit for living organisms
12. The ice begins to change into water at 0°C.
13. The work done during the motion of the object is 400 joules
14. It is the behaviour through which some animals dormant and stop most of their vital activities to avoid the extreme rise in temperature in summer and shortage of water and rains
15. It is the heat condition which determines the direction of heat energy whether from or to the object when it comes in contact with another.
16. The sum of the numbers of protons and neutrons in the nucleus of sodium atom equals 23
17. It is the temperature at which the matter begins to change from the solid state to the liquid state.
18. It is the sum of potential and kinetic energies of the body
19. The mass of one cubic centimeter ($1cm^3$) of water is 1 gm.

✹(11) Mention one example for each of the following :

1. Snail
2. Sloth
3. Voughair
4. Bat
5. Argon
6. Electric fan
7. Amoeba
8. Chameleon
9. Jerboa
10. Dynamo
11. Sun
12. Solar oven
13. Sodium
14. Hydrogen
15. Sulphur
16. Drosera
17. Amoeba
18. Nickel-chrome
19. Adiantam
20. Bromine
21. Acidic solution
22. Sodium

✹(12) Problems :

1

1. $^{23}_{11}Na$ (K 2, L 8, M 1)

1. The atomic number = 11
2. Mass number = 23
3. Number of electrons = 11
4. Number of neutrons = 12
5. Number of energy levels = 3
6. Chemical activity : Active

2. $^{20}_{10}Ne$ (K 2, L 8)

1. The atomic number = 10
2. Mass number = 20
3. Number of electrons = 10
4. Number of neutrons = 10
5. Number of energy levels = 2
6. Chemical activity : Inactive

2

Element symbol	Atomic number	Mass number	Number of protons	Number of electrons	Number of neutrons
$^{14}_{7}N$	7	14	7	7	7
$^{12}_{6}C$	6	12	6	6	6

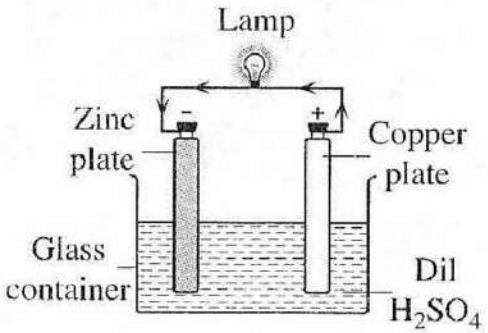
3

Weight = Mass × Acceleration due to gravity
= 50 × 9.8 = 490 newton

4

The volume of the iron piece =
The volume of water and the iron piece –
The volume of water = 110 – 100 = 10 cm^3.
The density of the iron piece (D)
$= \frac{M}{V} = \frac{78}{10} = 7.8$ gm/cm^3.

5



6

1. Kinetic energy $= \frac{1}{2} \times$ Mass $\times$ (Speed)^2
$= \frac{1}{2} \times 0.5 \times (3)^2$
$= 2.25$ joule

Potential energy = Height × Weight
$= 4 \times 5 = 20$ joule

Mechanical energy = Potential energy + kinetic energy = 20 + 2.25 = 22.25 joule

7

1. c 2. f 3. b 4. e

8

1. c 2. e 3. d 4. b

9

1. Structural adaptation.
2. Four fingers. 3. Meat.

10

1. Simple electric cell.
2. (1) Copper plate.
   (2) Dil. sulphuric acid.
   (3) Glass container.
   (4) Zinc plate.
3. It converts the chemical energy into electric energy.

11

The mass of water = the mass of the beaker – the mass of the empty beaker
= 156 – 56 = 100 gm.
The density of water $= \frac{\text{Mass}}{\text{Volume}} = \frac{100}{100}$
= 1 gm/cm^3.

12

1. $^{40}_{18}Ar$ — K 2, L 8, M 8

2. $^{7}_{3}Li$ — K 2, L 1

3. $^{24}_{12}Mg$ — K 2, L 8, M 2

4. $^{19}_{9}F$ — K 2, L 7

13 1. e 2. c 3. a 4. b

14 ∵ The volume of the piece of iron $= 120 - 100 = 20\ cm^3$.

∴ The density of iron $= \frac{Mass}{Volume}$

$= \frac{156}{20} = 7.8\ gm/cm^3$.

15

1. $^{23}_{11}Na$ — K 2, L 8, M 1

2. $^{40}_{20}Ca$ — K 2, L 8, M 8, N 2

16

1. $^{7}_{3}Li$ — K 2, L 1
   - The number of electrons in the outermost energy level = 1
   - The number of neutrons = 4

2. $^{24}_{12}Mg$ — K 2, L 8, M 2
   - The number of electrons in the outermost energy level = 2
   - The number of neutrons = 12

17

1. Kinetic energy is transformed to electric energy.
2. Electric energy is transformed to heat and light energies.
3. Electric energy is transformed to kinetic energy.
4. Electric energy is transformed to sound energy.

18

1. $^{23}_{11}Na$ — K 2, L 8, M 1

2. $^{35}_{17}Cl$ — K 2, L 8, M 7

3. $^{24}_{12}Mg$ — K 2, L 8, M 2

4. $^{7}_{3}Li$ — K 2, L 1

19 Potential energy = Weight × Height

$= 20 \times 5 = 100$ joules

20 Potential energy = Weight × Height

$= 50 \times 5 = 250$ joules

21 1. 11 2. 23 3. 3 4. 1

22 1. b 2. a 3. d 4. c 5. e

23 Work = Force × Displacement

$= 20 \times 1.5 = 30$ joules

24 1. 11 2. 23 3. 11 4. Active.

25

1. $^{39}_{19}K$ — K 2, L 8, M 8, N 1

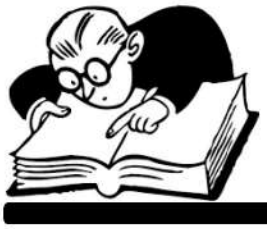
2. $^{19}_{9}F$ — K 2, L 7

3. $^{27}_{13}Al$ — K 2, L 8, M 3

4. $^{20}_{10}Ne$ — K 2, L 8

26

1. simple electric cell.
2. copper. 4. zinc.
5. dil. sulphuric acid.



Mini Revision

Mr. Ahmed Elbasha

(1) Choose the right answer:

1.In solar heater, solar energy is converted into ..... energy.

a. light b. electric c. heat

2.The colour property is a distinguishing factor between .....

a. Flour-sugar. b. silver-gold. c. oxygen-helium.

3.The third energy level is saturated by ..... electrons.

a. 2 b. 18 c. 8

4.A substance is solid and can't be soften by heating .....

a. copper. b. sulphur. c. aluminum.

5.Chemical energy can be stored in .....

a. car battery. b. raising a load up wards.

c. stretched spring. d. car lamps.

6.The chemical activity of the element depends on the number of .....

a. neutrons. b. protons. c. electrons in the outer level. d. levels filled with electrons.

7.An element has 2 electrons in the (L) level, so its atomic number is .....

a. 2 b. 4 c. 6 d. 8

8.All of the following are active elements except .....

a. $_{1}H$ b. $_{6}C$ c. $_{7}N$ d. $_{18}Ar$

9.Cooking pans are made up of .....

a. iron only. b. aluminium only. c. stainless steel only. d. (b) and (c)

10.The substances that float on water surface is ....

a. iron . b. cork. c. aluminium. d. copper.

11.The property of electric conduction is distinguishing factor between .....

a. iron and copper. b. wood and plastic.

c. iron and wood. d. no correct answer.

12.An object of 20 N. weight and it is placed at a height of 5 m. , so its potential energy is ..... joules.

a. 50 b. 150 c. 100 d.200

13.If you sit down beside an electric heater, heat is transferred to you by .....

a. convection. b. radiation. c. conduction. d. convection & radiation.

14.Scorpion belongs to .....

a. insects. b. arachnids. c. myriapods. d .mammals.

15.Equal masses of different substances have ..... volumes.

a. different b. constant c. equal

16.When a substance sinks in water, that means its density is ..... the density of water.

a. equal to b. less than c. more than

17.The ..... matter doesn't take the shape of the container.

a. solid b. liquid c. gaseous

18.The molecule of oxygen is composed of ..... atom(s).

a. one b. two c. three

19.The particles which revolve around the nucleus of an atom of element are .....

a. neutrons. b. protons. c. electrons.

20..... are from the animals which don't have a body support.

a. Reptiles b. Snails c. Jellyfish

21.The number of energy levels in the heaviest atoms is .....

a. 7 b. 8 c. 32 d. 18

22.From inert gases .....

a. nitrogen. b. helium. c. oxygen. d. bromine

23.Heat transfers from Sun to Earth by .....

a. convection. c. conduction.

b. radiation. d. conduction and convection.

24.In car engine, ... energy of the fuel is changed into heat and mechanical energy.

a. chemical b. electric c. light d. solar

25.Amoeba, euglena and paramecium differ from each other in the .....

a. number of teeth. b. number of legs.

c. kind of support. d . way of movement.

26..... insect exactly looks like the plant branches.

a. Stick b. Beetle c . Leaf d. Locust

27..... is from teethless mammals.

a. Lion b. Cow c. Lizard d. Sloth

28. ..... **is a permanent source of energy.**

a. Wind b. Fuel c. Food d. The Sun

29.Electric energy is converted into sound energy in .....

a. car battery . b. car lamps. c. radio cassette. d. pendulum.

30.Taste property is a distinguishing factor between .....

a. copper and iron. b. vinegar and perfume. c. salt and sugar. d. gold and silver.

31. ..... **belongs to the animals with no body support**

a. Octopus b. Mussel c . Hedgehog d . Snake

32.Dynamo converts mechanical energy into energy .....

a. electrical b. nuclear c. solar d . chemical

33. ..... **is a permanent source of energy**

a. Wind b. Coal c. The Sun d . Water

34.Rat has .....

a. two pairs of incisors in each jaw. b. one pair of incisors in each jaw.

c. three pairs of incisors in each jaw. d . no correct answer.

35.The Sun is .....

a. resource of permanent energy. b. resource of non-permanent energy.

c. not an energy resource. d . (a) and (c).

36.In the radio cassette inside the car the .....

a. electric energy is converted into mechanical energy.

b. light energy is converted into heat energy.

c. electric energy is converted into kinetic energy.

d. electric energy is converted into sound energy.

37.Atom symbol of potassium element is .....

a. Hg b. Cu c. P d.K

38.Some substances need heat to get soften such as .....

a. coal. b. iron. c. sulphur. d. rubber.

39.Secreting sweat by skin is considered ..... **adaptation.**

a. structural b. functional c. behavioral d. no correct answer

40.An object of 10 N. weight is placed at 5 m. height, it has a potential energy .....

a. 50 joule. b. 150 joule. c. 100 joule. c. 200 joule.

41.The handles of cooking pots are made of .....

a. copper. b. aluminium. c. wood. d. iron.

42.The role of technological application is represented in .....

a. using energy resources and converting energy from form to another.
b. creating energy from nothing.
c. storing energy as its form is.
d. illustrating energy forms.

43.Solids have ..... intermolecular force.

a. strong b. weak c. medium d. no correct answer

44..... is an example for plants that reproduce by spores.

a. Pine b. Beans c. Vougheir d. Wheat

45.From the animals which don't have a body support is .....

a. snail. b.jellyfish. c. fish . d. cartilaginous fi sh.

46.Heat is transferred by convection through .....

a. liquids only . b. gases only . c. solid only. d. liquids and gases.

47.When the atomic number of element equals its mass number, this means that there is no .....

a. electrons. b. protons . c. neutrons. d. nucleus.

48.The third energy level in the atom contains ..... electrons.

a.2 b.18 c.8 d. 32

49.The colour property distinguishing factor between .....

a. flour and table salt. b. iron and gold. c. O_2 and CO_2 . d. salt and sugar.

50.The molecule of gaseous element that consists of one atom is .....

a. oxygen. b. hydrogen. c. helium. d. mercury.

51.Heat transfers through liquids by .....

a. conduction. b. convection.
c. radiation. d. convection and radiation.

52.The molecule of ammonia consists of ..... atoms.

a. 2 b. 6 c. 4 d. 1

53.In the rodent the number of incisors in the upper jaw is .....

a. one pair. b. two pairs. c. three pairs. d. none.

54.Heat transfers from Sun to Earth by .....

a. conduction. b. convection. c. radiation. d. no answer.

55.When the object is throw upward the ..... of object decreases.

a. mass b. heat c. potential energy d. kinetic energy

56.Spider belongs to .....

a. insects. b. arachnids. c. myriapods. d. vertebrates

57.The number of atoms is equal to the number of elements in ..... molecule.

a. water b. hydrogen chloride c. oxygen d . ammonia gas

58.The example of living organism that undergoes hibernation is the .....

a. desert snail. b. jerboa. c. frog. d. all the previous.

59.Heat transfer by radiation takes place through .....

a. liquids only. b. gases only.

c. material media and nonmaterial ones. d. metals only.

60.From the animals that undergo aestivation is .....

a. rat b. jerboa c. frog .

61.From the plant that reproduce by forming spores .....

a. pine. b. wheat. c. voughair.

62.Mammal animal that has one pair of incisors in each jaw .....

a. squirrel. b. rabbit. c. lion. d. no correct answer.

63.The nucleus of ..... atom doesn't contain neutrons.

a. neon b. hydrogen c. oxygen d . no correct answer

64.Heat transfers by ..... through liquid and gas.

a. conduction b. convection c. radiation d. no correct answer

65..... is from the animals that make hibernation in winter.

a. Desert snail b. Jerboa c. Frog

66.All of the followings belong to arachnids except .....

a. locust. b. scorpion. c. spider.

67.The electric lamp changes the ..... energy into light and heat energy.

a. sound b. electric c. mechanical

68.The smell property is a distinguishing factor between .....

a. iron and gold. b. wood and plastic. c. perfume and vinegar.

69.The energy level N is saturated by ..... electrons.

a. 8 b. 18 c. 32

70.The third energy level is saturated by ..... electrons.

a. 2 b. 10 c. 18 d. 8

71.Heating coils are made up of ..... alloy.

a. iron-copper b. nickel-iron c. chrome-copper d. nickel-chrome

72..... reproduce by forming spores.

a. Vougheir b. Pine c. Bean d. Wheat

73.Car engine changes at first chemical energy to ..... energy.

a. heat b. electric c. magnetic d. light

74.When air heats up its density .....

a. not change. b. increases. c. decreases. d. (b) and (c).

75.The electron is ..... charged particle.

a. positively b. negatively c. neutrally

76.The number of pairs of scorpion legs is .....

a. 4 b.3 c. 44

77.An object of weight 6 newton, moved to a height 5 m, its potential energy is .....

a. 30 b. 75 c. 11

78..... is the monoatomic liquid molecule.

a. Bromine b. Mercury c. Iodine

79..... is an example of plants that reproduce by seeds.

a. Adiantum b. Vougheir c. Bean

80.By increasing the kinetic energy of particles, their ..... increases.

a. weight b. temperature c. volume

81.The electric energy is converted into kinetic energy in .....

a. electric lamp. b. electric fan. c. electric heater.

82..... bird migrates in winter.

a. Quail b. Duck c. Sparrow

83.In the solar cell. the solar energy is converted into ..... energy.

a. kinetic b. light c. electric d . heat

84.Distance among molecules are very small in .....

a. water. b. copper. c hydrogen. d . oil.

85.Birds migration represents ..... adaptation.

a. anatomical b. functional c. structural d. behavioral

86.The number of electrons that saturates the level (K) is .....

a.8 b.2 c.32

87.Dynamo converts mechanical energy into ..... energy.

a. electric b. nuclear c. solar

88.The Sun is a ..... source of energy.

a. non-renewable b. renewable c. permanent d. all the previous

89.The density of petroleum oil is ..... that of water.

a. less than b. more than c. equal to d. no correct answer

90.Insectivorous plants cannot absorb the nitrogenous substances to make .....

a. carbohydrates. b. proteins. c. fats. d. vitamins.

91.Secretion of poison in some snakes is an example of ..... **adaptation.**

a. structural b. behavioral c. functional d. all of them

92.Positive charged particles in the nucleus of atom are .....

a. neutrons. b. protons. c. electrons.

93.Potassium is symbolized by .....

a.P b. K c. B

94.From gymnosperms plants: .....

a. wheat. b. pine plant. c. maize.

95.Density measuring unit .....

a.cm3. b. gm. c. gm./cm3

96.Heat is transferred by radiation through .....

a. liquids only. b. gases only. c. material media and non-material ones.

97.The monoatomic liquid is .....

a. Hg b. Ag c. Mg d.Br

98.The rule which is used to find the electronic configuration for the first four energy levels is .....

a. 22n b. $2n^2$ c. 2n d. n^2

99.An object of mass 1 kg moves at speed 4 m/s., so it has a kinetic energy= ..... **joule.**

a. 16 b. 8 c.64 d.4

100.The scorpion belongs to .....

a. insect. b. myriapods. c. arachnids. d. mammals.

Model Answer

(1) Choose the right answer:

1. C	20. C	40. A	60. B	80. B	100. C
2. B	21. A	41. C	61. C	81. B	
3. B	22. B	42. A	62. A	82. A	
4. B	23. B	43. A	63. B	83. C	
5. A	24. A	44. C	64. B	84. B	
6. C	25. D	45. B	65. C	85. D	
7. B	26. A	46. D	66. A	86. B	
8. D	27. D	47. C	67. B	87. A	
9. D	28. D	48. B	68. A	88. C	
10. B	29. C	49. B	69. C	89. A	
11. C	30. C	50. C	70. C	90. B	
12. C	31. A	51. B	71. D	91. C	
13. D	32. A	52. C	72. A	92. B	
14. B	33. C	53. A	73. A	93. B	
15. A	34. B	54. C	74. C	94. B	
16. C	35. A	55. D	75. B	95. A	
17. A	36. D	56. B	76. A	96. C	
18. B	37. D	57. B	77. A	97. A	
19. C	38. B	58. C	78. B	98. B	
	39. B	59. C	79. C	99. B	

1- Complete the following:

1- …….. and way of…….are used in classification in plants

2- Some plants have large leaves as……and some have small leaves as……..

3 ……. is the basic unit of classification in living organism

4- …….. and …….. are from micro-organisms

5- …….. and …….are examples for insectivores plants.

6- Hawks have…….beaks to tear the prey , where as ducks have wide ……. ……beaks to filter food from water

7- The whale front limbs are modified into …….. to take the role of ……

8- The adaptation of living organisms may ……., ……

9- Secretion of sweat from sweat glands is ……. adaptation

10- The …… takes the shape of the container but……has no definite shape.

11- The hydrogen molecule consists of……while the argon molecule consists of ……

12- Work = …….. × …….

13- When the object moves down …… energy converts into……energy

14- Mechanical energy = ……..+ …….

15- Kinetic energy depends on …….. and …….

16- Factors effect on potential energy are ……..and …….

17- Kinetic energy = …….X ……. X……

18- Potential energy = ……..× ……

19- Weight= ……..× ……

20- In simple pendulum …….. energy changes into energy

21- ……. and..... are toothless mammals.

22- Arthropods can be classified according to the number of jointed legs ……. , ……. and .....

23- Unit of volume is ……. and that of mass is …….

24- Density is ……. unit volume of the substances and its unit is …….

25- An alloy of ……..is used in making jewels while an alloy of…….is used in making heater coils.

26- Holders of light bulbs in streets are painted from time to time in order to protect themfrom ……..

27- Substances that conduct heat and electricity as ……. and …….

28- Equal masses of different substances have different ……..

29- Equal volumes of different substances have different ……..

30 ……is the temperature at which matter changes from solid into liquid.

31- The liquid element which is composed of one atom is .....while that is composed of two atoms is ……..

32-Animals that have sharp incisors are divided according to their number in each jaw into …….. and ……

33-……..is considered as an example for the structural, functional and behavioral adaptation

1. The sum of protons and neutrons in the nucleus (.....)
2. Particles which have negatively charge and negligible masses. (……..)
3. Imaginary places in which electrons can move around the nucleus.(….....)
4. Ability to do work (…….)
5. Energy stored in an object due to its position (.....)
6. Energy stored in an object due to its motion (.....)
7. A form of energy that is stored in the food (.....)
8. Plants which reproduce by spores (.....)
9. Branch of science study the similarity and differences of living organisms(…..)

10-Group of more similar living organisms in shape that can reproduce to give birth of new fertile individuals ( )

11-It is a modification of a living organism to be more adapt with environment

12-The adaptation in the structure of organ (.....)

13- The adaptation in the function of organ (……)

14- The adaptation in the activity of animals during daylight (.....)

15- The building unit of matter. (……)

16- The space that is found between molecules. (.....)

17- The force that is bound the molecules. (.....)

18- Gasses that consist of one atom. ( )

19- The simplest pure form of substance that cannot be analysis into simple form (….)

20- The smallest part of mater keeps the properties of matter(……)

21- The product of combination of different types of atoms (.....)

22- Number of positive protons in the atom (.....)

Problems

1. A piece of metal has a mass of 189 gram, volume of 3cm^3. **Calculate** its density.

……

2. A cube of a certain material has aside length = 10 cm. **Calculate** its density whenits mass equal to 99 gm.

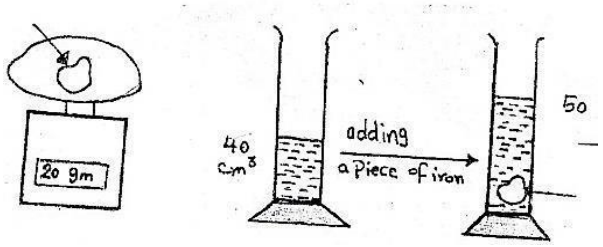
…….

……

3. In an experiment for determination the density, the mass of the used beaker (empty) was 25 gm., the mass of the beaker (containing liquid) was 75 gm, **Calculate** the density of the liquid if its volume is 50 cm^3.

……..

4. **From the opposite figure:**



A. **Calculate** the volume of stone.

……

B. If the mass of stone = 20 gm what's the density of this stone?

……

5- If this stone is placed in a jar containing mercury does it sink or float? Give reason (density of mercury is 13 gm / cm^3)

……

6- An objects ,whose mass is 2 kg and it is at height of 5 m from earth's surface **Calculate** the potential energy .

……

7- What is the weight of the body ,whose potential energy is 88joules and it is at height of 11m?

……

8- **Calculate** the K.E of a car moves with velocity 20 m / s if it mass is900 kg

……

9- **Calculate** the kinetic energy of a body its weight 48 N that moves with a speed 4 m/sec. knowing that the gravitational acceleration is 9.8m/s^2 ?

……

10-A body of mass 50 kg , **Calculate** the height from the Earth's surface ifits P.E at that height equals 2500 joule (g = 10 m / s^2) .

……
……

……
……

Give Reason for

1 Painting metallic bridges and light columns in streets from time to time
……..

2 – Gold and silver are used in making jewels.
……

3– Cork floats on the water surface while the iron nail sinks.
……

4 – Cooking pots are made up of aluminum where their hand is made up wood.
……

5 – Water doesn't use in putting off petroleum fire.
…… ……

6 – Equal masses of different substances have different volumes
……...

7- Water and alcohol is less than the sum of their volumes before mixing.
……..

8- It is different to break down a piece of iron with your hand. …
……..

9- Oxygen is an element while sodium chloride is a compound.

……..

10- Molecule of helium differs from molecule of hydrogen.

……..

11- The color of water change on adding an amount of potassium permanganate to it.

……..

12- It is different to break down a piece of iron with your hand. …

……..

13- Oxygen is an element while sodium chloride is a compound.

……..

14- Molecule of helium differs from molecule of hydrogen.

……..

15- The color of water change on adding an amount of potassium permanganate to it.

……

16- The Liquids take the shape of their containers.

……..

17- Camals limb ends in a thick flat pad .

……..

18- Some plants pounce and digest insects.

……..

19- Jerboa and desert snail become dormant and hide in humid burrows.

……..

20- Some animals can colored themselves with dominant colors of their environment.

……

21- Camel's legs ended with a broad pad.

……

22- The mechanical energy of the body is always constant.

……..

23- The potential energy on the ground = zero.

……

24- The K.E at maximum height equal zero.

……

25- No change in potential energy when the object moves horizontally.

……

2. **D - Write the electronic configuration of each the following:**

1. $^{7}_{3}Li$ 2. $^{1}_{1}H$ $_{17}$ 3. ^{35}C

a. What is the name of each symbol?

……..

b. Determine the no. of protons, electrons and neutrons.

$^{7}_{3}Li$ …… $^{1}_{1}H$ …… $_{17}C^{35}$ ……

.

c. Determine if the atom is active or not. ……

E - An element Y has 7 electrons in the third energy level and its mass no. is 35

Determine:

No. of protons. No. of electrons No. of neutrons. ……

Write its electronic configuration. ……..

Determine if the atom is active or not……

Choose from column (B)what suits it in column (A):

(A)	(B)
1-Pine plant	a-is from ferns.
2-Molukhiyah	b-is from gymnosperms.
3-Clover	c-is from monocotyledons.
4-Wheat	d-is from dicotyledons.
5-Vougheir	e-has large-sized leaves.
6-Banana plant	f-has small-sized leaves.
7-Bean plant	g-is from short weeds.
	h-is from algae.

(A)	(B)
1-Edentates	a-have no support.
2-Insects	b-have large number of jointed legs.
3-Rodents	c-have pointed canines.
4-Myriapods	d-have no teeth.
5-Arachnids	e-have three pairs of jointed legs.
6-Lions	f-have 4-pairs of jointed legs.
	g-have one pair of incisors in upper jaw.

Give an example of each of the following:

1- An animal with an external support. (.....)

2- An animal with an internal support. (.....)

3- An animal with a soft body. (.....)

4-A lagomorph animals. (.....)

5-A plant produces seeds in cones. (.....)

6-A myriapod animal. (.....)

7-An arachnid animal. (.....)

Mention one difference between each of the following:

1-Bean plant and wheat plant.

…………

… 2-Pine and palm trees.

…………

… 3-Insects and arachnids.

…………

… 4-Rodents and lagomorphs.

…………

…………

5-Gymnosperms and angiosperms.

…………

… 6-Sloth and hedgehog.

…………

7-Rabbit and squirrel.

…………

…………

Choose the odd word out and write the scientific term of others:

1-Fishes – crocodiles – lions – hippopotami.(.....)

2-Clover – Paramecium – Amoeba – Euglena. (..... ..)

3- Palm – Vougheir – Adiantum – Ferns. (.....)

4- Wheat – Pea –Corn – Bean – Pine. (.....)

5- Scolopendra – Bee – Rabbit – Julius. (.....)

6- Cockroach – Flies – Spider – Mosquito – Locust.(.....)

7- Rabbit – Squirrel – Rat – Hedgehog. (.....)

8- Lion – Tiger – Dog – Wolf – Armadillo. (.....)

9- Reptiles – Snails – birds – Mammals. (.....)

Model answer

1- External shape and way of reproduction are used in classification in plants
2- Some plants have large leaves as banana and some have small leaves as Molukhiyah
3- Species is the basic unit of classification in living organism
4- Amoeba and paramecium are from micro-organisms
5- Halophila and dorsera are examples for insectivores plants.
6- Hawks have sharp strong crooked beaks to tear the prey , where as ducks have wide indented .beaks to filter food from water
7- The whale front limbs are modified into paddles to take the role of swimming
8- The adaptation of living organisms may be functional , structural and behavioral
9- Secretion of sweat from sweat glands is functional adaptation
10. The liquids takes the shape of the container but gases has no definite shape.
11. The hydrogen molecule consists of two while the argon molecule consists of one atom
12. Work = displacement ×force
13. When the object moves down potential energy converts into kinetic energy
14. Mechanical energy = potential energy+ kinetic energy
15. Kinetic energy depends on mass and velocity
16. Factors effect on potential energy are weight and height
17. Kinetic energy = ½ MV^2
18. Potential energy = weight × height
19. Weight= Mass×gravity acceleration
20. In simple pendulum potential energy changes into kinetic energy
21. Sloth and armadillo are toothless mammals.
22. Arthropods can be classified according to the number of jointed legs into insects , myriapods and arachnids
23. Unit of volume is Cm^3 and that of mass is gram
24. Density is mass unit volume of the substances and its unit is g/cm^3
25. An alloy of Copper-gold is used in making jewels while an alloy of nickel-chrome is used in making heater coils.

Model answer

26. Holders of light bulbs in streets are painted from time to time in order to protect them from rust
27. Substances that conduct heat and electricity as copper and aluminum
28. Equal masses of different substances have different volumes
29. Equal volumes of different substances have different masses
30. Melting point is the temperature at which matter changes from solid into liquid.
31. The liquid element which is composed of one atom is mercury while that is composed of two atoms is bromine

32- Animals that have sharp incisors are divided according to their number in each jaw into **rodent** and **lagomorphs**

33- **stick insect** looks like the branches of plants.

34- **camel** is considered as an example for the structural, functional and behavioral adaptation

1. The sum of protons and neutrons in the nucleus (mass number)
2. Particles which have negatively charge and negligible masses. (electrons)
3. Imaginary places in which electrons can move around the nucleus.
   (Energy levels) .i
4. Ability to do work (energy)
5. Energy stored in an object due to its position (potential energy)
6. Energy stored in an object due to its motion (kinetic energy)
7. A form of energy that is stored in the food (chemical energy)
8. Plants which reproduce by spores (ferns like adiantum)
9. Branch of science study the similarity and differences of living organisms
   (Taxonomy) .i

10- Group of more similar living organisms in shape that can reproduce to give birth of new fertile individuals (Species)

11- It is a modification of a living organism to be more adapt with environment (Adaptation)

12- The adaptation in the structure of organ (structural adaptation)

13- The adaptation in the function of organ (functional adaptation)

Model answer

14- The adaptation in the activity of animals during daylight (behavioral
15- The building unit of matter. (atom)
16- The space that is found between molecules. (intermolecular spaces)
17- The force that is bound the molecules. (attraction force)
18- Gasses that consist of one atom. (inert gases)
19- The simplest pure form of substance that cannot be analysis into simple form (Element)
20- The smallest part of mater keeps the properties of matter(molecules)
21- The product of combination of different types of atoms (compound)
22- Number of positive protons in the atom (atomic number)

problems

1. A piece of metal has a mass of 189 gram, volume of 3cm^3. **Calculate** its density.

D = m/v = 189/3 = 63 gm/Cm^3.

2. A cube of a certain material has aside length = 10 cm. **Calculate** its density when its mass equal to 99 gm.

…**V= 1010 10= 1000 Cm^3.**

D= m/v= 99/1000 =0.099gm/Cm^3.

3. In an experiment for determination the density, the mass of the used beaker

(empty) was 25 gm., the mass of the beaker (containing liquid) was 75 gm, **Calculate** the density of the liquid if its volume is 50 cm^3.

M= m2 – m1 =75 – 25 = 50 gm D = m/v = 50 /50 = 1 gm/Cm^3 .

4.From the opposite figure:

A. **Calculate** the volume of stone.

Model answer

……**V= V2 –V1 = 50 - 40 = 10 Cm^3.**

B. If the mass of stone = 20 gm what's the density of this stone?

……**D = m/v = 20/10= 2 gm/Cm^3**

6-If this stone is placed in a jar containing mercury does it sink or float?
Give reason (density of mercury is 13 gm / cm^3)

……It will float because its density is less than that of mercury.

6- An objects ,whose mass is 2 kg and it is at height of 5 m from earth's surface **Calculate** the potential energy .

P.E = wxh w= mx10 P.E = 2x10x5 = 100 j

7- What is the weight of the body ,whose potential energy is 88 joules and it is at height of 11m?

P.E = wxh w = = 8 N

8- Calculate the K.E of a car moves with velocity 20 m / s if it mass is 900 kg

k.e = mv x 900 $x(20)^2$ = 180000 j

9- Calculate the kinetic energy of a body its weight 48 N that moves with a speed 4 m/sec. knowing that the gravitational acceleration is 9.8 m/s^2 ?

w = mx10 m = = 4.8 kg K.E = x 4.8 x $(4)^2$ = 38.4 j

10- A body of mass 50 kg , **Calculate** the height from the Earth's surface if its P.E at that height equals 2500 joule (g = 10 m / s^2) .

w= mx10 = 50 x10=500 N

H= = 5M

Model answer

Give reason

1 Painting metallic bridges and light columns in streets from time to time

. ……**To protect them from rust and corrosion**.

2 – Gold and silver are used in making jewels.

……**Because they are chemically poor active**

3 – Cork floats on the water surface while the iron nail sinks.

……**Because the density of cork is less than water but the iron is more than that of water**

4 – Cooking pots are made up of aluminum where their hand is made up wood.

…**Because it's a good conductor of heat and it has a high melting point**

5 – Water doesn't use in putting off petroleum fire.

Because the density of petrol is less than that of water so float on water surface

6 – Equal masses of different substances have different volumes

Because they have different density.

7- Water and alcohol is less than the sum of their volumes before mixing.

…Because some molecules of alcohol occupy the intermolecular spaces among the water molecules.

8-It is different to break down a piece of iron with your hand. …

Because the intermolecular force between its molecules is very strong. And the intermolecular space is very narrow.

9-Oxygen is an element while sodium chloride is a compound.

Model answer

…Because oxygen molecule is formed of two similar atoms but sodium chloride is formed of two different atoms. …

10-Molecule of helium differs from molecule of hydrogen.
…Because helium is an inert gas and its molecule is monoatomic ,but hydrogen is active gas and its molecule is diatomic

11-The color of water change on adding an amount of potassium permanganate to it.

…Because the molecules of potassium permanganate is in continuous motion amongwater molecules

12-It is different to break down a piece of iron with your hand. …
Because the intermolecular force between its molecules is very strong. And the intermolecular space is very narrow.

13-Oxygen is an element while sodium chloride is a compound.
…Because oxygen molecule is formed of two similar atoms but sodium chloride is formed of two different atoms. …

14-Molecule of helium differs from molecule of hydrogen.
…Because helium is an inert gas and its molecule is monoatomic ,but hydrogen is active gas and its molecule is diatomic

15-The color of water change on adding an amount of potassium permanganate to it. …Because the molecules of potassium permanganate is in continuous motion amongwater molecules

16- The Liquids take the shape of their containers.
Because the intermolecular force between its molecules is weak and intermolecular spaces is relatively large

Model answer

17-Camals limb ends in a thick flat pad .
To enable the camel to walk through hot desert .

18-Some plants pounce and digest insects.
To absorb nitrogenous substances that the plants bodies need .

19- Jerboa and desert snail become dormant and hide in humid burrows.
To overcome extreme rise in temperate.

To overcome shortage of water and rains.

20- Some animals can colored themselves with dominant colors of their environment.

To be hidden from its preys of insects o feed on them .

21- Camel's legs ended with a broad pad.
To enable the camel for walking on hot sand .

22- The mechanical energy of the body is always constant.

Bec, the mechanical energy is a sum . of potential and kinetic energy so increasing of potential energy compensated by decreasing in K.E

23- The potential energy on the ground = zero.

Bec, there is no change in height

(height = 0)

24- The K.E at maximum height

equal zero.

Because the speed equal zero

Model answer

25- No change in potential energy when the object moves horizontally. Because there is no change in height

2. D - Write the electronic configuration of each the following:

1. $^{7}_{3}$Li(2,1) 2. $^{1}_{1}$H(1) 3. $_{17}^{35}$C(2,8,7)

a. What is the name of each symbol?

Lithium- Hydrogen – carbon.

b. Determine the no. of protons, electrons and neutrons.

$^{7}_{3}$Li p= 3 e= 3 n= 4 ^{1}H p= 1 e=1 n= 0 $_{17}$C p= 17 e=17 n= 18

c. Determine if the atom is active or not. active – active – active.

E - An element Y has 7 electrons in the third energy level and its mass no. is 35 Determine:

No. of protons. No. of electrons No. of neutrons. 17- 17- 18
Write its electronic configuration. (2, 8, 7)
Determine if the atom is active or not. Active

Model answer

Choose from column (B)what suits it in column (A):

(A)	(B)
1-Pine plant b	a-is from ferns.
2-Molukhiyah f	b-is from gymnosperms.
3-Clover g	c-is from monocotyledons.
4-Wheat c	d-is from dicotyledons.
5-Vougheir a	e-has large-sized leaves.
6-Banana plant e	f-has small-sized leaves.
7-Bean plant d	g-is from short weeds.
	h-is from algae.

(A)	(B)
1-Edentates d	a-have no support.
2-Insects e	b-have large number of jointed legs.
3-Rodents g	c-have pointed canines.
4-Myriapods b	d-have no teeth.
5-Arachnids e	e-have three pairs of jointed legs.
6-Lions c	f-have 4-pairs of jointed legs.
	g-have one pair of incisors in upper jaw.

Model answer

Give an example of each of the following:

1-An animal with an external support. (**snails – mussels**)

2-An animal with an internal support. (**birds – reptiles**)

3-An animal with a soft body. (**jelly fish**)

4-A lagomorph animals. (**rabbit** .)

5-A plant produces seeds in cones. (**pine – cycas** .)

6-A myriapod animal. (**scolopendra** .)

7-An arachnid animal. (**ants – spider** .)

Mention one difference between each of the following:

1-Bean plant and wheat plant.

Dicotyledom - monoctyledom .

2-Pine and palm trees.

Produce seed in cones - Produce seed in pericarp

3-Insects and arachnids.

3Pairs of jointed legs - 4pairs of jointed legs

4-Rodents and lagomorphs.

One pair of incisors in each jaw

2 pairs of incisors in upper jaw and one pair in lower one

5-Gymnosperms and angiosperms.

Model answer

Produced seeds in cones - produced seed in pericarp

6-Sloth and hedgehog.

Edentates have front teeth

7-Rabbit and squirrel.

Lagomorphs 2 pairs in the upper jow and one in lower - rodent (one pair of incisors in each jaw)

Choose the odd word out and write the scientific term of others:

1-Fishes – crocodiles – **lions** – hippopotami.(animals live in water)

2-**Clover** – Paramecium – Amoeba – Euglena. (micro – organisms)

3-**Palm** – Vougheir – Adiantum – Ferns. (plants reproduce by spores)

4-Wheat – Pea –Corn – Bean – **Pine.** (angiosperms .)

5-Scolopendra – Bee – **Rabbit** – Julius. (arthropods)

6-Cockroach – Flies – **Spider** – Mosquito – Locust.(**insects**)

7-Rabbit – Squirrel – Rat – **Hedgehog.** (animals have sharp incisors)

8-Lion – Tiger – Dog – Wolf – **Armadillo.** (mammals with teeth)

9-Reptiles – Snails – birds – Mammals. (animals with internal support)

A- What happens when……?

1- Heating of a piece of coal.

……

……

……

2- Three atoms of hydrogen combine with one atom of nitrogen.

……

……

3- Opening of a perfume bottle in closed room for a while.

……

……

……

4- Decreasing the volume of a body to half, according to its density.

……

……

……

5- Putting of a piece of cork and a metallic coin in water.

……

……

……

6- Heating of some water in a beaker to its boiling point.

……

……

……

7- Using of water in putting out petrol fires.

……

……

……

B- Write the scientific term:

1- The result of combination between two or more atoms of different elements with constant ratio of mass (……).

2- It is everything that has mass and volume. (……).

3- Mass of unit volume of a substance (……).

4- The simplest pure form of matter and cannot be analyzed into simpler form (……..).

5- Three hydrogen atoms and one nitrogen atom (……).

6- The smallest part of matter that can exist freely having the properties of a substance (……).

7- It is the mass of one cubic centimeter of a substance (……).

8- It is used in determination of purity of some substances (……..).

9- They are metals that lose their luster once they are exposed to air. (……..)

10- An alloy used in making heating coils. (……)

11- Diatomic gaseous substances (ex: chlorine). (……)

12- A liquid element that has a monoatomic molecule (……).

C- Put (✓) or (X) then correct the wrong one:

1- The compound is result of combination between two or more atoms of different elements with constant ratio of mass ( ).

2- The water molecule composed of three atoms of different elements ( ).

3- Molecules of any substance are very tiny ( ).

4- Compound molecules have different number of same atom ( ).

5- Matter molecules are in continues motion ( ).

6- Substances of densities more than that of water float ( ).

7- Density is related to the object mass and to its volume. ( ).

8- Water is used in extinguishing petrol fires ( ).

9- Rubber is a solid substance which is soft at room temperature.( ).

10- Equal volumes of different substances have similar masses. ( ).

11- Hydrogen chloride HCl consists of two atoms and two element. ( ).

12- A liquid element whose molecule consists of two atoms is mercury ( ).

13- Solids take the shape of their container. ( )

D- Complete the following statements:

1- ……. is result of combination between two or more atoms of different elements with constant ratio of mass.

2- A substance whose molecule is composed only of one kind of atoms, whatever its number is known as…….

3- ……. is the product of a combination of two atoms or more of different elements with constant weight ratios.

4- The molecules are composed of tiny structural units, each of them is known as the……..

5- Matter is everything that has ……. And occupies space.

6- Substances of densities …….than water density, float on water surface.

7- The …….. is the structural unit of the living organism.

8- Spare parts of cars are coated with……to protect them getting rust.

9- Matter is formed of very small structural units known as…….

10- We distinguish between gold and silver by their different……..

11- We differentiate between table salt and sugar by their different……..

12- We differentiate between perfume and vinegar by their different…….

13- The molecules have intermolecular……and…….. between them.

14- Matter consists of ……. that carry its properties.

E- Choose the correct answer:

1- Which of the following statements best defines the density of a substance?

a. The area per unit volume of a substance
b. The hardness per unit volume of a substance
c. The thickness per unit area of a substance
d. The mass per unit volume of a substance

2- ……is used in making electric wires or cables.

a. Wood.
b. Plastic.
c. Copper.
d. Silver.

3- ……. has low melting point.

a. Table salt.
b. Wax.
c. Copper.

d. Aluminum.

4- The handles of cooking pans are made of…….

a. iron

b. aluminum

c. copper

d. wood and plastic

5- The property of electrical conductivity is a distinguishing factor between……..

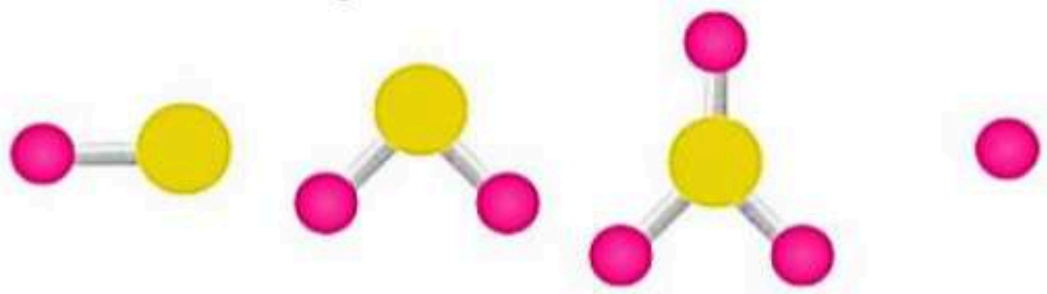
a. iron and copper

b. iron and wood

c. wood and plastic

d. no correct answer

6- Which of the following is a water molecule?



A-What happens when……?

1- Heating of a piece of coal.

- It can't be soften by heating.

2- Three atoms of hydrogen combine with one atom of nitrogen.

- Ammonia molecule is formed.

3- Opening of a perfume bottle in closed room for a while.

- The odor of the perfume spreads all over the room.

4- Decreasing the volume of a body to half, according to its density.

- The density remains constant.

5- Putting of a piece of cork and a metallic coin in water.

- The piece of cork floats on water surface, while the metallic coin sinks in it.

6- Heating of some water in a beaker to its boiling point.

- Its molecules gain thermal energy and their speed increases and at the boiling point some of them overcome the intermolecular forces and the intermolecular spaces increase, so they escape in the form of vapor.

7- Using of water in putting out petrol fires.

- The petrol floats on water surface, so the fires don't put out.

B- Write the scientific term:

1- The compound.
2- Matter.
3- Density
4- Element.
5- Ammonia molecule.
6- Molecule.
7- Density.
8- Density.
9- Very active metals.
10- Nickel-Chrome alloy
11- Active gases.
12- Mercury

C- Put (✓) or (X) then correct the wrong one:

1- True.
2- True.
3- True.
4- Compound molecules have different number of different atom
5- True.
6- Substances of densities more than that of water sink.
7- True.
8- Water is not used in extinguishing petrol fires
9- True.

10- Equal volumes of different substances have different masses.

11- True.

12- A liquid element whose molecule consists of two atoms is bromine

13- Liquids take the shape of their container.

D-Complete the following statements:

1- Compound.

2- Element.

3- Compound

4- Atom.

5- Mass.

6- Less.

7- Cell.

8- Grease

9- Molecule.

10- Color

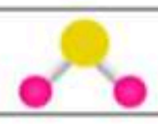
11- Taste

12- Smell

13- Spaces/ forces.

14- Molecules.

E-Choose the correct answer:

1. D.
2. C.
3. B
4. D
5. B
6. 

A- What happens when…….?

1- Increasing the mass of a body to double, according to its density.

……

……

……

2- The force is increased to double.

……

……

3- Heating of a piece of coal.

……

……

……

4- Falling an object towards the earth's surface " concerning its potential and kinetic energies"

……

……

……

5- The electron gains some energy which equals to the difference between the energies of two levels.

……

……

……

……

6- Three atoms of hydrogen combine with one atom of nitrogen.

……

……

……

7- Leaving steel bridges and the holders of light bulbs without paint.

.....

.....

.....

8- Opening of a perfume bottle in closed room for a while.

.....

.....

.....

9- Decreasing the volume of a body to half, according to its density.

.....

.....

.....

10- Putting of a piece of cork and a metallic coin in water.

.....

.....

.....

11- Heating of some water in a beaker to its boiling point.

.....

.....

.....

12- Using of water in putting out petrol fires.

.....

.....

.....

13- Heating of a piece of solid matter for a long time.

.....

.....

.....

B- Write the scientific term:

1- It is written at the left side above the symbol (.....).

2- The result of combination between two or more atoms of different elements with constant ratio of mass (…….).

3- It is everything that has mass and volume. (…….).

4- Mass of unit volume of a substance (…….).

5- The ability of doing work or cause a change (……..).

6- The simplest pure form of matter and cannot be analyzed into simpler form (……..).

7- Three hydrogen atoms and one nitrogen atom (…….).

8- The smallest part of matter that can exist freely having the properties of a substance (…….).

9- It is the mass of one cubic centimeter of a substance (…….).

10- It is used in determination of purity of some substances (……..).

11- They are metals that lose their luster once they are exposed to air. (……..)

12- An alloy used in making heating coils. (……)

13- Diatomic gaseous substances (ex: chlorine). (……)

14- A liquid element that has a monoatomic molecule (…….).

15- It is the sum of potential and kinetic energies of the body. (…….).

C- Put (✓) or (X) then correct the wrong one:

1- The energy used by plants in photosynthesis process is heat energy. ( ).

2- The compound is result of combination between two or more atoms of different elements with constant ratio of mass ( ).

3- The water molecule composed of three atoms of different elements ( ).

4- Molecules of any substance are very tiny ( ).

5- When you add an amount of table salt to water, it disappears after a short time. ( ).

6- Compound molecules have different number of same atom ( ).

7- Matter molecules are in continues motion ( ).

8- Substances of densities more than that of water float ( ).

9- Density is related to the object mass and to its volume. ( ).

10- Water is used in extinguishing petrol fires ( ).

11- Rubber is a solid substance which is soft at room temperature.( ).

12- Equal volumes of different substances have similar masses. ( ).

13- The energy of level (L) is less than the energy of level (K). ( ).

14- Hydrogen chloride HCl consists of two atoms and two element. ( ).

15- A liquid element whose molecule consists of two atoms is mercury ( ).

16- Solids take the shape of their container. ( )

D- Complete the following statements:

1- Protons carry…….charges, while neutrons carry……charges.

2- ……. is result of combination between two or more atoms of different elements with constant ratio of mass.

3- A substance whose molecule is composed only of one kind of atoms, whatever its number is known as…….

4- ……. is the product of a combination of two atoms or more of different elements with constant weight ratios.

5- The molecules are composed of tiny structural units, each of them is known as the……..

6- Matter is everything that has ……. And occupies space.

7- Substances of densities ……than water density, float on water surface.

8- The …….. is the structural unit of the living organism.

9- Spare parts of cars are coated with……to protect them getting rust.

10- Matter is formed of very small structural units known as…….

11- We distinguish between gold and silver by their different……..

12- We differentiate between table salt and sugar by their different……..

13- We differentiate between perfume and vinegar by their different…….

14- The molecules have intermolecular……and…….. between them.

15- Matter consists of ……. that carry its properties.

E- Choose the correct answer:

1- An object's mass is 10 kg. If you know that the gravity due to its acceleration = 9.8 m/s^2 , its weight = …….. N.

a. 19.8
c. 98
b. 980
d. 0.098

2- Which of the following statements best defines the density of a substance?

a. The area per unit volume of a substance

b. The hardness per unit volume of a substance

c. The thickness per unit area of a substance

d. The mass per unit volume of a substance

3- ……is used in making electric wires or cables.

a. Wood.

b. Plastic.

c. Copper.

d. Silver.

4- …… has low melting point.

a. Table salt.

b. Wax.

c. Copper.

d. Aluminum.

5- The handles of cooking pans are made of……

a. iron

b. aluminum

c. copper

d. wood and plastic

6- The property of electrical conductivity is a distinguishing factor between……..

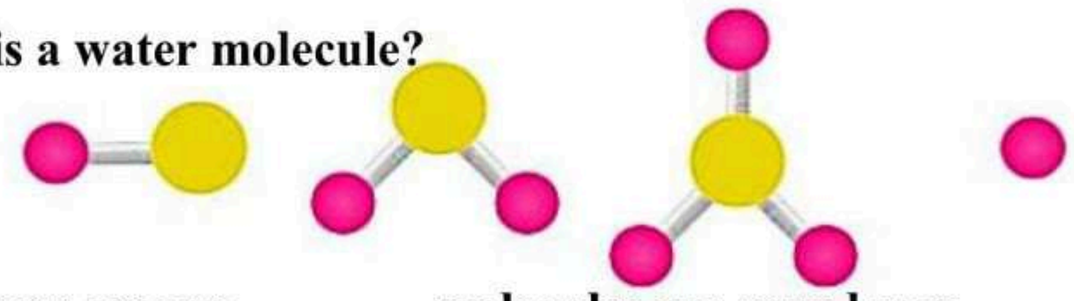
a. iron and copper

b. iron and wood

c. wood and plastic

d. no correct answer

7- Which of the following is a water molecule?



8- The intermolecular spaces among ..... molecules are very large.

a. gas

b. solid

c. liquid

d. no correct answer

F- Give reason for:

1- The symbol of sodium is (Na) not (So) as it is expected.

.....

.....

.....

2- A piece of ice changes into water after a period of time when it is left in air.

.....

.....

.....

3- Many countries are aiming to replace burning of fuel with new resources of energy such as solar energy, wind energy and water motion.

.....

.....

.....

.....

4- Potassium and sodium are kept under kerosene surface.

.....

.....

.....

5- The mass of 1 cm^3 of iron is higher than that of 1 cm^3 of wood.

.....

.....

.....

6- Potential energy equals zero when the body moves horizontally.

.....

.....

.....

.....

G- Answer the following questions:

1- An atom of boron has 5 electrons. How many electrons does this atom have in its outer level?

.....

.....

.....

2- **The atomic numbers of a selection of elements are shown in the table below.**

- **How many more electrons does an atom of beryllium need to gain to obtain a full outer level?.**

Element	Beryllium	Boron	Carbon	Nitrogen	Oxygen	Fluorine
Atomic Number	4	5	6	7	8	9

.....

.....

.....

3- **In total, how many electrons are needed for both the K and L energy levels to be full?.**

.....

.....

.....

4- **An atom contains 5 electrons. How many of these electrons occupy the L energy level?.**

.....

.....

.....

5- **Mention:**

- **The factors affecting the kinetic energy.**

.....

.....

.....

.....

6- **What is meant by…?**

- **The kinetic energy of an object = 100 J.**

.....

.....

.....

7- **Which one needs more work to stop, if the two cars are moving at the same speed? And why?.**

.....

.....

.....

8- Solve the problem:

- A stone whose mass is 5 kg was thrown up and reached a height of 6 m, then its velocity was 4 m/sec.

Calculate:

a- Potential energy.

b- Kinetic energy.

9- Solve the problem:

Find the mechanical energy, if potential energy equals 20 J, and kinetic energy equals 30 J.

10- Write the symbol of each of the following elements:

Nitrogen

.....

Calcium

.....

Phosphorous

.....

Oxygen

.....

11- Complete the following table:

Element	Atom symbol
Potassium	
Sodium	
	Fe
	Au
	Ag
	Hg
	I
Copper	
Lead	
Fluorine	

12- An atom contains 6 electrons. How many protons does the nucleus of the atom have?

.....

.....

.....

A-What happens when.....?

1- Increasing the mass of a body to double, according to its density.

- **The density remains constant.**

2- The force is increased to double.

- **The work done will be doubled.**

3- Heating of a piece of coal.

- **It can't be soften by heating.**

4- Falling an object towards the earth's surface " concerning its potential and kinetic energies"

- **The potential energy decreases gradually with the same value of increasing its kinetic energy.**

5- The electron gains some energy which equals to the difference between the energies of two levels.

- **It transfers to higher energy level and the atom becomes excited atom.**

6- Three atoms of hydrogen combine with one atom of nitrogen.

- **Ammonia molecule is formed.**

7- Leaving steel bridges and the holders of light bulbs without paint.

- **They will rust and corrode.**

8- Opening of a perfume bottle in closed room for a while.

- **The odor of the perfume spreads all over the room.**

9- Decreasing the volume of a body to half, according to its density.

- **The density remains constant.**

10- Putting of a piece of cork and a metallic coin in water.

- **The piece of cork floats on water surface, while the metallic coin sinks in it.**

11- Heating of some water in a beaker to its boiling point.

- **Its molecules gain thermal energy and their speed increases and at the boiling point some of them overcome the intermolecular forces and the intermolecular spaces increase, so they escape in the form of vapor.**

12- Using of water in putting out petrol fires.

- **The petrol floats on water surface, so the fires don't put out.**

13- Heating of a piece of solid matter for a long time.

- **Its molecules gain thermal energy and their speed increases and at the melting point the intermolecular forces weaken, so the intermolecular spaces increase, and they become more freely leading to the change of matter from the solid state into the liquid state.**

B- Write the scientific term:

1- Mass number.

2- The compound.

3- Matter.

4- Density

5- Energy.

6- Element.

7- Ammonia molecule.

8- Molecule.

9- Density.

10- Density.

11- Very active metals.

12- Nickel-Chrome alloy

13- Active gases.

14- Mercury

15- Mechanical energy.

C-Put (✓) or (X) then correct the wrong one:

1- The energy used by plants in photosynthesis process is solar energy.

2- True.

3- True.

4- True.

5- True.

6- Compound molecules have different number of different atom

7- True.

8- Substances of densities more than that of water sink.

9- True.

10- Water is not used in extinguishing petrol fires

11- True.

12- Equal volumes of different substances have different masses.

13- The energy of level (L) is greater than the energy of level (K).

14- True.

15- A liquid element whose molecule consists of two atoms is bromine

16- Liquids take the shape of their container.

D- Complete the following statements:

1- Positive/ neutral.

2- Compound.

3- Element.

4- Compound

5- Atom.

6- Mass.

7- Less.

8- Cell.

9- Grease

10- Molecule.

11- Color

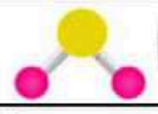
12- Taste

13- Smell

14- Spaces/ forces.

15- Molecules.

E- Choose the correct answer:

1. C.	
2. D.	
3. C.	
4. B	
5. D	
6. B	
7. 	
8. A	

F- Give reason for:

1- The symbol of sodium is (Na) not (So) as it is expected.

- Because the symbol is derived from Latin name, so that the symbol of this element differs from its name in English language.

2- A piece of ice changes into water after a period of time when it is left in air.

- Because the melting of ice is low.

3- Many countries are aiming to replace burning of fuel with new resources of energy such as solar energy, wind energy and water motion.

- Because they are very cheap, renewable and clean resources of energy and do not pollute the environment.

4- Potassium and sodium are kept under kerosene surface.

- To prevent their reaction with atmospheric oxygen as they are active metals.

5- The mass of 1 cm^3 of iron is higher than that of 1 cm^3 of wood.

- Because the density of iron is more than that of wood.

6- Potential energy equals zero when the body moves horizontally.

- Because the height equals zero and P.E. is directly proportional to the height.

G- Answer the following questions:

1- Three electrons.

2- Six electrons.

3- 10 electrons.

4- 3 electrons.

5- - The mass of the object.

- The velocity of the object

6- The work done during the motion of an object = 100 J.

7- The truck needs more work to stop; because, the kinetic energy of a moving object increases by increasing the mass. Therefore, the work needed to stop it increases.

8- Weight = m x g

=5×10=50 Newton.

- P.E= weight × height

  = 50 × 6 = 300 J

- K.E = ½ × mass × (speed)^2

- ½ × 5 × $(4)^2$ = 40 J.

9- Mechanical energy = P.E + K.E = 20 + 30 = 50 J

10- N / Ca / P / O

11- Complete the following table:

Element	Atom symbol
Potassium	K
Sodium	Na
Iron	Fe
Gold	Au
Silver	Ag
Mercury	Hg
Iodine	I
Copper	Cu
Lead	Pb
Fluorine	F

12- 6 protons.

Science for 1st Prep.

Final Revision

First term

1. Complete the following:

1- Unit of volume is …….and that of mass is…..
2- Density is ……..unit volume of the substances and its unit is ……
3- An alloy of ……..used in making jewels while an alloy of …used in making heater coils, & an alloy of …… is used to make cooking utensils.
4- Holders of light bulbs in streets are painted from time to time in order to protect them from …….
5- Substance that conduct heat and electricity as….and ……..while bad conductor's substances …..and …..
6- Equal mass of different substances have different ……..
7- Equal volumes of different substances have different ……
8- ……The temperature at which matter change from solid into liquid
9- The liquid element which is composed of one atom is ……..while that composed of two atoms is …..
10- The matter is composed of different units called ……..while these units are consisted of similar units called ……
11- the …takes the shape of the container but ……..has no definite shape
12- The hydrogen molecule consists of …..while the argon molecule consists of …….
13- Work = ……..×……..
14- ……is permanent energy but ……is renewable energy resources
15- When the object moves down …….energy convert into ……energy
16- Mechanical energy = ……..+ ……..
17- Kinetic energy depends on …….and ……..
18- Factors effect on potential energy is ……..and ……..
19- Kinetic energy = ….×…….
20- Potential energy = …….×……..
21- Weight = …….×…
22- In simple pendulum ……energy change into ……..energy
23- When the velocity of the ball of the pendulum is maximum , the …energy is maximum , while ……..energy is minimum
24- …….and ……are toothless mammals
25- Arthropods can classify according to the number legs into ……., …….and ….

26- …….and……. …are used in classification in plants
27- Some plants have large leaves as ..and some have small leaves as ...
28- …….is the basic unit of classification in living organism
29- ……and ……from micro-organisms
30- ……..and ……..are examples for insectivores plants
31- Hawks have……. beaks to tear the prey , where as ducks have …….beaks to filter food from water
32- Horses limbs ends in …….to run over rocky soil where as camels limbs ends in …..to walk on hot sandy soil
33- The whale front limbs are modified in the bat into ….to take the role of ……
34- The adaptation of living organisms may be ……,……..and …….
35- Secretion of sweat from sweat glands is ……..adaptation
36-

The device	Energy used	Energy produced
Heater		
Washing machine		
Door bell		
Solar cell		
Cellular phone		

2. Choose the correct answer:

1. the color property is distinguishing factor between (flour and salt- iron and gold – oxygen and hydrogen)
2. the small property is a distinguishing factor between (iron and copper – wood and plastic – perfume and vinegar)
3. the taste property is a distinguishing factor between (milk and honey – wood and plastic – silver and gold)
4. the property of electric conduction is a distinguishing factor between (iron and copper – wood and plastic – iron and wood)
5. Resources of permanent energy is (petrol –sun – coal)
6. Mechanical energy is the sum of (potential and heat – potential kinetic – kinetic and light)
7. An object of 20 n weight is placed at 5 m height , it has a potential energy (50 – 150 -100)

8. An object of mass 2 kg is moving at speed at 4 m/s has kinetic energy (16-0 64- 32)
9. Chemical energy can be stored in (car battery – car lamps – stretched spring)
10. As doubled height of an object cause (increase the kinetic energy into double – decrease to half – increase the potent ional energy into double)
11. Electric energy converted into kinetic energy in (electric lamp – fan – electric bell)
12. The sum of potential energy and kinetic energy at the effect of gravity known as (conservation of mechanical energy – conservation of matter – earth gravity)
13. In the solar batteries the solar energy is converted into …energy (kinetic – light – electric)
14. Mechanical energy converted into heat energy in (combustion – friction – electric current)
15. The scorpion belongs to(insects–Myriapoda–arachnids – mammals)
16.....is an example for plants that reproduce by spores (pine – beans – vougheir – wheat)
17.…….are from the animals which don't have a body support (reptiles –snail – jelly fishes – cartilaginous fish)
18. The number of pairs in scorpion legs is ……(3- 4- 44- 100)
19. All the following are animals lives in water except (fishes –lizerds – crocodile)
20. All the following are unicellular except(amoeba–euglena–rhinoceros)

3. Write the scientific term:

1- The building unit of matter
2- The space that found between molecules
3- The force that bound the molecules
4- Gasses consist of one atom
5- Smallest pure form of substance can not analysis into simple form
6- The smallest part of mater keeps the properties of matter
7- The product of combination of different types of atoms
8- The smallest unit of matter that share in chemical reaction
9- Number of positive protons in the atom
10- Sum of protons and neutrons in the nucleus
11- Energy needed to transfer the electron from level to another
12- Particles which negativity charge and negligible masses

13- Imaginary way in which electrons can moves around the nucleus
14- Summation of kinetic and potential energy
15- Ability to do work
16- Energy stored in object due to it position
17- Energy stored in an object due to its motion
18- A form of energy stored in the food
19- Plants which haven't leaves –stem or roots
20- Small plants reproduce by spores
21- Animals that their bodies have internal support
22- Brunch of science study the similarity and differences of living organisms
23- Group of animals similar in shape in one group and produce fertile individuals
24- It is a modification of a living organism to be more adapt with environment
25- The adaptation in the structure of organ
26- The adaptation in the function of organ
27- The adaptation in the activity of animals during daylight

4. Give reason for:

1- Water not for extinguishing the fir of petrol?
2- Balloon filled with hydrogen and helium rise upwards
3- Wood piece floats in water surface while a piece of lead sinks
4- Iron rode used in building houses concrete
5- Ice change into water after period o f time
6- Electrician uses a screw driver made up of steel iron with a woody handle
7- A drop of ink spread in the water
8- Disappear of salts in water by dissolving
9- It's easy to divide drops of water into droplets
10- Gas has indefinite shape and volume
11- Oxygen is an element but sodium chloride is a compound
12- Difficult to break apiece of iron
13- The different between magnesium and sodium in atomic numbers
14- The volume of mixture(water and alcohol) is smaller than the sum of each
15- The perfume spread in all spaces.
16- The atom is electrically neutral
17- The mass number is greater than atomic number

18- The 3rd energy level (M) in the atom contain 18 electrons
19- The equation 2n2 is not applied on levels higher than 4th
20- Neon atom doesn't enter the chemical reaction
21- The electrons are filling the K level before filling L level
22- Inert gases cannot share in chemical reaction.
23- some birds have long and thin beaks and their long legs ends in thin toes
24- Some plants pounce insects
25- The bones of monkey of their limbs are elongate
26- Some plants feed on insects
27- Insectivores are self feeding
28- Some birds have thin beak and long legs
29- Ducks have wide beak and palm legs
30- The fuel inside the car similar the food inside the body
31- Hedgehog has front teeth extending outwards.
32- When a zebra mates a donkey, they can't produce fertile individuals

5. What happens if:

1. Roots of desert plants are short.
2. We use water to put off fires.

6. Problems:

1- On determine the iron density using a piece of iron of mass 87 g. The piece is immersed in 100 cm^3 of water. The water increase up to 110 cm^3 Calculate iron density
2- Calculate the density of a cube, its mass 70,2 gm and its volume 9 cm^3
3- Calculate the kinetic energy of a moving body its mass 4 kg and its velocity 6 m/s

7. Put (√) or (X)

1- Molecules of same substances are different from each other
2- The attraction force in solid is very small
3- Distance among solid molecules very small
4- The motion of gases molecules are limited
5- The molecule of solid substance are vibrates
6- The compound consist of atoms of one element
7-

8. Compare :

a) A rabbit and a squirrel –
b) Bean plant and wheat plant -
c) The pine and palm trees
d) Solid, liquid & gas:

Points	Solid	Liquid	Gases
Motion			
Intermolecular spaces			
Intermolecular force			
Shape			
Volume			

9. write the symbols of the following

Sodium – potassium – chlorine – nitrogen – calcium – aluminum – phosphorous

……

10. Complete the table:

Symbols	Atomic no	Mass no	No of electrons	No of protons	No of neutrons	electronic configuration
$^{23}_{11}Na$						
$^{35}_{17}Cl$						
$^{24}_{12}Mg$						
$^{4}_{2}He$						
$^{7}_{3}Li$						
$^{40}_{20}Ca$						
$^{20}_{10}Ne$						
$^{32}_{16}S$						

11. What is the meant by :-

Atomic number of sodium is 20 - mass number of calcium is 40- Density - boiling point - melting point - Law of energy conservation -Low of conservation of mechanical energy

12. What the mathematical relation between :-

1- displacement – work – force
2- weight – potential- height
3- kinetic energy – mass – velocity
4- kinetic – mechanical – potential

13. Mention the harms of :-

a. Car exhaust
b. Nuclear weapon
c. Chemical pesticides

14. Cross out the unsuitable word:-

1-Locust – mosquito – spider –cockroach – flies
2- Lion – tiger – dog - wolf – armadillo
3- Beans – pea corn pine wheat
4- Octopus - desert snail- frog - fresh water mussels – tilapia

15. Match:

A	*B*
1- density measured unit	Atomic number
2- number of positive protons in nucleus	Cm^3
3- substance that can conduct heat and electricity	Mass number
4- mass measuring unit	Copper and iron
5- total number of protons and neutrons	gm
6- bad conductors of heat and electricity	gm/cm^3
7- volume measuring unit	wood and plastic

16. Write the mathematical formula for each of the following:

1- Mechanical energy
2- The work done by a body
3- The number of electrons in each of the first four energy level
4- The weight of body (by knowing the mass)
5- Density

I - Write the definition of each of the following :

1 – Matter :.....

.....

2 – Density :.....

.....

3 – Melting point :.....

.....

4 – Boiling point :.....

.....

5 – Molecule :.....

.....

6 – Intermolecular spaces :.....

.....

7 – Intermolecular forces :.....

.....

8 – Element :.....

.....

9 – Compound :.....

.....

10 – The atom :.....

.....

11 – The atomic number :.....

.....

12 – The mass number :.....

.....

13 – Energy levels :.....

.....

14 – Quantum :.....

.....

15 – Excited atoms:.....

.....

16 – Energy :.....

.....

17 – Potential energy :.....

.....

18 – Kinetic energy :.....

.....

19 – Mechanical energy :.....

.....

20 – Conservation law of energy :.....

.....

21 - Heat energy :.....

.....

22 – Temperature :.....

.....

23 – Taxonomy :.....

.....

24 – Algae :.....

.....

25 – Ferns :.....

.....

26 – Species :.....

.....

27 – Adaptation :.....

.....

28 – Hibernation :.....

.....

29 – Aestivation :.....

.....

30 - Birds migration :.....

.....

31 – Camouflage :.....

.....

2 – What is meant by each of the following :

1 – The **density** of **iron** is 7.8 gm/cm^3?.....

.....

2 – The mass of I cm^3 of aluminium is 2.7 gm?.....

.....

3 – The melting point of iron is 1535°C?.....

.....

4 – The boiling point of alcohol is 78.73 °C?.....

.....

5 – A drop of water is composed of millions of water molecules?.....

.....

6 – The **atomic** number of **lithium** atom is 3?.....

.....

7 – The **mass** number of **lithium** atom is 7?.....

.....

8 - The **potential** energy of an object = 20 Joules?.....

.....

9 - The **kinetic** energy of an object = 60 Joules?.....

.....

10 – The **mechanical** energy of a moving body = 100 Joules?.....

.....

3 – Write the scientific term for each of the following :

1 – The amount of matter in an object

2 – The space that is occupied by the object

3 – The **mass** of **unit volume** (1 **cm**^{3}) of matter

4 – The **smallest part** of **matter** that can **exist freely** and matter properties appear in it

5 – **Spaces** that are found among the molecules of matter

6 – The **force** that **binds** the **molecules** of **matter** together

7 – The **state** of **matter** that has **a definite** shape and **a definite** volume

8 – The **state** of **matter** that has **a definite** volume and **an indefinite** shape

9 – The **state** of **matter** that has **an indefinite** shape and **volume**

10 – The **change** of **matter** from **solid** state to **liquid** state by **heating**

11 – The **change** of **matter** from **liquid** state to **gaseous** state by **heating**

12 – The **simplest state** of **matter** which **cannot** be decomposed into **a simpler one** by **chemical means**

13 – The **molecule** which is formed of **similar** atoms

14 – The **molecule** that consists of **one** atom

15 – The **molecule** that consists of **two similar** atoms

16 – The result of **combination** between **two** or **more** atoms of **different elements** with **constant weight ratios**

17 – The **molecule** which is formed of **different** atoms

18 – It is the **building unit** of **a molecule**

19 – **Negatively charged particles** that revolve around the nucleus

20 – The **number** of **positive protons** inside the nucleus

21 – The **number** of **negative electrons** that rotate around the nucleus

22 – The **sum** of the **numbers** of **protons** and **neutrons** inside the nucleus

23 – **Imaginary regions** around the nucleus in which the electrons move according to their energies

24 – The **amount** of **energy** lost or gained when an electron transfers from one energy level to another

25 – The **atom** that **gains** a quantum of energy

26 – The **ability** to **do (exert) work** or to **make a change**

27 – The **stored energy** in **an object** due to the **work done** on it

28 – The **work done** during the **motion** (**movement**) of an object

29 - It is **a form** of **energy** which is transferred from an object with **higher** temperature to that with **lower** temperature

30 - It is **a heat condition** which determines the **direction** of **heat energy**, whether **from** or **to** the object, when it comes with contact with another object

31 – **Organisms** that **can't** be **seen** by **naked eye** and they spread everywhere in soil, water and air

32 – The **stain (dye)** used to **examine** the **stagnant water pond**

33 – The **micro-organism** that moves by **pseudopods**

34 - A **branch** of **biology** that **searches** for the similarities and the differences among living organisms and it **places** the similar ones in groups according to a certain system in order to ease their study

35 – **Plants** that **can't** be **distinguished** into **roots**, **stems** and **leaves**

36 - A group of **terrestrial plants** that reproduce by formation of **spores**

37 - The **basic unit** of **classification** of living organisms

38 – **A set** of **similar** animals in their **shape** and can get intermated together to produce fertile individuals

39 – The **modification** of a living organism's **behaviour**, **body structure** or **organs biological functions** to become suitable for the environment, where it lives

40 – The in the **structure** of **one** of **body organs** to cope the environmental conditions

41 – The **ability** of some body **organs** and **tissues** to do **certain functions**

42 – The **modification** in the **behaviour** of living organism at **specific times** of the **day** or the **year**

43 – The **plants** which feed on **insects**

44 – The **behaviour** that some animals do by **hiding** in **burrows** to avoid the **low** temperature in **winter**

45 – The **behaviour** that some animals do by **hiding** in **humid burrows** to avoid the **extreme rise** temperature in **summer**

46 – It is **inherited behaviour** in **some species** of **birds,** where they **migrate** from **cold** and **polar** regions to **more lighted** and **warmer** regions for **reproduction**

47 –The **ability** of **some living organisms** to **simulate** the **dominant environmental conditions** be **hidden** from their **enemies** or to **capture** their **preys**

4 - Complete the following statements :

1 – The **measuring unit** of **mass** is....., while the **measuring unit** of **volume** is.....

2 – **Density** is the.....of **unit volume** of a substance and its **measuring unit** is.....

3 – **Melting point** is the.....at which the matter begins (starts) to change from the solid state to the.....state

4 – **An alloy** of.....is used in **making jewels**, while **an alloy** of.....is used in making **heating coils**

5 – Some **solutions** are **good** conductors of electricity as.....and....., while **others** are **bad** conductors of electricity as.....and.....

6 – **Electric wires** are made up of.....or.....as they are.....conductors of electricity

7 - .....and.....are **good** conductors of **heat** and **electricity**

8 - .....and.....are **bad** conductors of **heat** and **electricity**

9 – **Light spots** in **streets** are **painted** from time to time to protect them from.....

10 –.....**take** the **shape** of the container, while.....has **no definite** shape

11 – **Matter** consists of **small building units** called.....which consist of **smaller building units** called.....

12 – The **liquid element** which consists of **one atom** is....., while that consists of two atoms is.....

13 –**Hydrogen** molecule consists of....atoms, while **argon** molecule consists of.....atom

14 – The **symbol** of **sodium** atom is....., while that of **lead** atom is.....

15 – The **mass number** is the sum of.....number and.....number which exist in the nucleus

16 – The **maximum number** of ***energy levels*** in the heaviest atom is.....and they are represented from **inner** to **outer** levels by **letters**.....

17 – The **maximum number** of ***electrons*** that **saturates** a given energy level is obtained from the **rule**.....which is **applied only** to the **first**.....**energy levels**

18 – The rule **(relation) $2n^2$ is not applied** to the **energy levels** higher than.....as the atom becomes.....if the energy level contains more than.....electrons

19 – The **first** energy level (K) is **saturated** with.....**electrons**, while the **second** energy level (L) is **saturated** with.....**electrons**

20 – The **outermost energy level** of any atom **can't** take more than.....electrons, **except**.....**level** which is **saturated** with.....**electrons** only

21 - .....is the **ability** to **do (exert) work** and its **measuring unit** is.....

22 – The **kinetic** energy **increases** by **increasing** the.....and.....of the **body**

23 – On **doubling** the **speed** (**velocity**) of a moving object, its K.E.....

24 – When a body is **raised up,** its **potential** energy....., while the **kinetic** energy.....

25 – Mechanical energy = ...+.....

26 – The **positive** pole in the **simple cell** is....., while the **negative** pole is.....

27 - .....**energy** is changed into **electric energy** in the **battery**

28 – The **wire** of the **electric heater**,.....energy changes into.....energy

29 - .....plant carries **small-sized** leaves, while.....plant carries **large-sized** leaves

30 – When you **examine** a pond water drop by **a microscope,** some **micro-organisms** can be seen such as.....,.....and.....

31 - .....and.....are from **principles** used in **classifying plants**

32 - .....is from the plants that reproduce by **formation** of **spores**, while..... is from the plants that **reproduce** by **formation** of **seeds** inside **cones**

33 – **Flowering plants** are classified into.....such as.....and.....such as.....

34 – **Arthropods** are classified according to the **number** of **legs** into.....,..... and.....

35 - .....and.....belongs to **edentates** (**teethless** mammals)

36 – **Armadillo** is one of the.....mammals and **hedgehog** is one of the.....mammals

37 – The **number** of **jerboa's upper** jaw **incisors** is.....and the number of **rabbit's upper** jaw is.....

38 - .....is the **basic unit** of **classification** of **living organisms**

39 – **Horse's limb** ends in.....to **run** on **rocky soil**, while **camel's limb** ends in.....to **walk** on the **sandy soil**

40 – Types of adaptation are **structural**,.....and.....

41 – The **whale** front limbs are **modified** into.....to **take** the **role** of....., whereas they **modified** in the **bat** into.....to **take** the **role** of.....

42 – **Beaks** of **predatory birds** as **hawks** are.....and sharp.....beaks to.....

43 - .....,.....and.....are examples of **insectivorous plants**

44 – In **winter**, **frogs** bury themselves in **mud** and this is called....., while in **summer jerboa** hides in **humid burrows** and this is called.....

5 - Give reason for each of the following :

1 – An iron nail sinks in water, while 1 kilogram of cork floats on its surface?.....
.....

2 – A piece of wood floats on water surface, while a piece of lead sinks in it?.....
.....

3 – Water is not used to put out (extinguish) petrol (oil) fires?.....
.....

4 – A piece of ice melts when it is left in air?.....
.....

5 – Iron rods not copper rods are used in building concrete houses?.....
.....

6 – An electrician uses a screwdrivers made of steel iron with a plastic hand?.....
.....

7 – Wood and plastic are poor conductors of heat?.....

.....

8 – Steel bridges and holders of light bulbs are painted from time to time?.....

.....

9 – The volume of a mixture of water and alcohol is less than the sum of their volumes before mixing?.....

.....

10 – Disappearance of a little amount of a little amount of table salt when it is put in a beaker containing water for a period of time?.....

.....

11 – It is difficult to break (bend) (fragmentize) an iron piece with your hand?.....

.....

12 - It is easy to divide an amount of water into smaller parts?.....

.....

13 – The solid matter has a definite shape, while the liquid matter takes the shape of its container?.....

.....

14 – The nucleus of the atom is positively charged?.....

.....

15 – The atom is electrically neutral? (In its ordinary state)?.....

.....

16 – The mass number is usually greater than the atomic number?.....

.....

17 – The electrons are distributed to fill (K) level before filling (L) level?.....

.....

18 – The energy level (M) in the atom isn't occupied by more than 18 electrons?

The third energy level in the atom is saturated by 18 electrons?.....

.....

19 – The rule ($2n^2$) is not applied on the energy levels greater than 4^{th} level?.....

.....

20 – Elements (substance) differ from each other in chemical activity?.....
.....

21 – Inert (Nobel) gases can't share in chemical reactions in ordinary state?.....
.....

22 – Neon atom ($^{20}_{10}Ne$) doesn't take part in the chemical reaction, while nitrogen atom ($^{14}_{7}N$) takes part in the chemical reaction?.....
.....

23 – The fuel in a car as food for man?.....
.....

24 – The kinetic energy of a moving object increases by increasing its mass?.....
.....

25 – Some technological applications have negative effects?.....
.....

26 – Ecologists do not appreciate all the technological applications which are used in energy transformations?.....
.....

27 – The bike tire gets hot once you press the brakes?.....
.....

28 - The freezer of the fridge is found at the top of the fridge?.....
.....

29 – Electric heater is put at the bottom of the room?.....
.....

30 - Solar energy is among preferable kinds of energy?.....
.....

31 - It is preferred to use Sun and electricity as sources of heat energy than coal or petrol?
.....

32 – Nuclear stations which produce electricity are preferred to those of petrol stations?..
.....

33 – Scorpion (spider) is not considered from insects?.....
.....

34 – The front teeth of hedgehog are extending outwards?.....
.....

35 - The individuals of the same species differ in some external characteristics?.....
.....

36 – Camel's limbs end in a thick flat pad?.....
.....

37 – Secreting poison in snakes is considered a functional adaptation?.....
.....

38 – Forelimbs of whales, dolphins and sea lion are modified into paddles?.....
.....

39 – Bat's forelimbs are modified into wings?.....
.....

40 – Some birds have long thin beaks?.....
.....

41 – Water birds (ducks and geese) have wide indented beaks in the two sides?.....
.....

42 – Some plants as (Drosera and Halophila) pounce and digest insects?.....
.....

43 – Some animals make hibernation in winter?.....
.....

44 – Some desert animals go to (undergo) aestivation?.....
.....

45 - Some birds migrate from their original habitats in winter?.....
.....

46 – Quail bird is good example for adaptation to the environmental conditions?.....
.....

6 - What happens when :

1 – Leaving a piece of iron exposed to moist air for a period of time?.....
.....

2 – The electron gains a quantum (an amount) of energy?.....
.....

3 – Friction between a tire of a bicycle and a rough surface? Why?.....
.....

4 – Camel exchanges its pad with a horse's hoof?.....
.....

5 – The beaks of hoopoe and hawk are mutually exchanged?.....
.....

6 – The polar bear couldn't hibernate?.....
.....

7 – No aestivation occurs to jerboa?.....
.....

8 – The aestivated animals don't store their food in the form of fats?.....
.....

7 – What are the results based on :

1 – Increasing the well-known species of living organisms?.....
.....

2 – Variety of ways of movement in mammals?.....
.....

3 - The variety of food for birds?.....
.....

4 – Stick insect looks like the branches of plant?.....
.....

8 – What is the important (function) (use) of :

1 – Nickel-chrome alloy :.....
.....

2 – Electrons of the outermost energy level :.....
.....

3 – The paddles of dolphins and whales :.....
.....

4 – The wings of bats :.....

.....

5 – The elongated front limbs of monkeys :.....

.....

6 – The strong and sharp crocked beaks of hawks :.....

.....

7 – The sharp claws in vultures :.....

.....

8 – The wide intended beaks in ducks :.....

.....

9 – Mention an example for each of the following :

1. A gas, its density is less than that of air :.....
2. A substance that has a high melting point :.....
3. A substance that has a low melting point :.....
4. An alloy that is used in making cooking pots : :.....
5. An alloy that is used in making jewels : :.....
6. An alloy that is used in making heating coils : :.....
7. A substance that is soft in room temperature : :.....
8. A substance that becomes soft by heating : :.....
9. A substance that doesn't become soft by heating :.....
10. A solution conducts electricity :.....
11. A solution doesn't conduct electricity :.....
12. A substance its solution in benzene doesn't conduct electricity :.....
13. A good conductor of heat and electricity :.....
14. A very active metal :.....
15. A less active metal :.....
16. A substance that is used to cover metallic spare part of cars :.....
17. An inactive (A chemically poor active) metal :.....
18. A solid matter :.....
19. A liquid matter :.....
20. A gaseous matter :.....
21. A liquid element composed of one atom :.....
22. A liquid element composed of two atoms :.....

23. An active gas :.....

24. An inert (nobel) (inactive) gas :.....

25. A compound molecule consisting of two atoms :.....

26. A compound that has a number of atoms equals the number of its elements :.....

27. A compound molecule consisting of three atoms :.....

28. A compound molecule consists of four atoms :.....

29. A compound that has a number of atoms double the number of its elements :.....

30. An animal of large size :.....

31. An animal of small size :.....

32. An animal lives in water :.....

33. An animal lives on land :.....

34. A huge tree

35. A short weed (herb)

36. A plant carries small-sized leaves

37. A plant carries large-sized leaves

38. A unicellular microorganism

39. A plant can't be distinguished into root, stem and leaves

40. A plant reproduces by formation of spores

41. A terrestrial (fern) plant

42. A gymnosperm plant

43. A plant produces seeds inside cones

44. An angiosperm plant

45. A flowering plant

46. A plant produces seeds in a fruit envelope

47. A monocotyledon plant

48. A dicotyledon plant

49. An animal with soft body

50. An animal with an external support

51. An animal with an internal support

52. A vertebrate animal

53. A mammal

54. An arthropod has 6 legs

55. An arthropod has 8 legs

56.An arthropod has numerous legs
57.An edentate animal
58.Animal has front teeth extending outwards
59.Animal has pointed canines and molars with sharp projections
60. A rodent animal
61. A lagomorph animal
62.An animal whose limbs end in a thick flat pad
63.An animal who can walk on the hot desert sand
64. An animal whose limbs end in a strong solid hoof
65.An animal who can run on the rocky soil
66. Anatomical adaptation
67.Functional adaptation
68. Behavioural adaptation
69. A mammal animal, whose two front limbs are modified into paddles
70.A mammal animal, whose two front limbs are modified into wings
71. An animal, whose front limbs and fingers are elongated
72. A predatory bird
73. A bird, whose beak strong and sharp
74. A bird, whose fingers end with strong and sharp claws
75. A bird feeds on worms and snails of shallow water
76. A bird, whose legs are long and thin
77. A bird feeds on mosses
78. A bird, whose beak is wide and intended in the two sides
79. A predacious plant
80. Hibernation in amphibian
81. Aestivation in rodents
82. A migratory bird
83. Camouflage in insects
84. An insect, which looks like the plant leaf in its colour and shape of wings
85. An insect, which looks like the branches of plant as well
86. An animal, which colour its self with the dominant colours of the environment to be hidden from its insect predators

10 – Write the (symbols) of the following elements :

Element	Its symbol	Element	Its symbol
1. Sodium	.....	15. Magnesium	.....
2. Silver	.....	16. Iron	.....
3. Gold	.....	17. Bromine	.....
4. Lead	.....	18. Copper	.....
5. Potassium	.....	19. Calcium	.....
6. Fluorine	.....	20.Sulphur	.....
7. Silicon	.....	21. Phosphorous	.....
8. Argon	.....	22.Oxygen	.....
9. Mercury	.....	23.Iodine	.....
10. Hydrogen	.....	24.Nitrogen	.....
11. Helium	.....	25.Chlorine	.....
12. Neon	.....	26.Zinc	.....
13. Lithium	.....	27.Aluminium	.....
14. Carbon	.....	28.Boron	.....

11 – Write the (name) of elements of these symbols :

Symbol	Element	Symbol	Element
1. Al	.....	15. Li	.....
2. Zn	.....	16. Ne	.....
3. Cl	.....	17. He	.....
4. K	.....	18. Cr	.....
5. I	.....	19. Hg	.....
6. O	.....	20.Ar	.....
7. P	.....	21. Si	.....
8. S	.....	22.F	.....
9. Ca	.....	23.N	.....
10. Cu	.....	24.Pb	.....
11. Br	.....	25.Au	.....
12. Fe	.....	26.Ag	.....
13. Mg	.....	27.Na	.....
14. C	.....	28.Be	.....

12 – Compare between each of the following :

1. **Very active** metals, **less active** metals and **inactive** metals :

P.O.C	Very active metals	Less active metals	Inactive metals
Chemical activity	.....	.....	.....
Examples	.....	.....	.....

2. The **states** of **matter**

P.O.C	Solid state	Liquid state	Gaseous state
Intermolecular spaces	.....	.....	.....
Intermolecular forces	.....	.....	.....
Motion of molecules	.....	.....	.....
Volume	.....	.....	.....
Shape	.....	.....	.....
Examples	.....	.....	.....

3. **Active gases** and **inert gases**

P.O.C	Active gases	Inactive (inert) (nobel) gases
Their number	.....	.....
Their names (Examples)	.....	.....
No. of atoms forming molecule	.....	.....
No. of electrons in the outermost energy level	.....	.....
Chemical activity	.....	.....

4. **Potential** energy and **kinetic** energy :

P.O.C	Potential energy	Kinetic energy
Definition	.....	.....
Factors affecting it	1. ..... 2.	1. ..... 2. .....
Examples	.....	.....
Law used	.....	.....
Relation between them	.....	.....

5. Methods of heat transfer

P.O.C	Transfer of heat by conduction	Transfer of heat by convection	Transfer of heat by radiation
Definition	.....	.....	.....
The medium	.....	.....	.....
Applications	.....	.....	.....

6. Amoeba, euglena and paramecium

P.O.C	Amoeba	Euglena	Paramecium
Way of movement	.....	.....	.....

7. Gymnosperms and angiosperms (flowering plants)

P.O.C	Gymnosperms	Angiosperms (flowering plants)
Seeds	.....	.....
Examples	.....	.....

8. Insects, arachnids and myriapods

P.O.C	Insects	Arachnids	Myriapods
Number of legs	.....	.....	.....
Examples	.....	.....	.....

9. Rodents and lagomorphs

P.O.C	Rodents	Lagomorphs
Number of incisors in each jaw	.....	.....
Examples	.....	.....

10. Types of adaptation

P.O.C	Structural (anatomical) adaptation	Functional adaptation	Behavioural adaptation
Definition	.....	.....	.....
Examples	.....	.....	.....

11. **Hibernation** and **aestivation**

P.O.C	Hibernation	Aestivation
Definition	.....	.....
Time	.....	.....
Features of adaptation	.....	.....
The reason of adaptation	.....	.....
Type of adaptation	.....	.....

13 – State the (energy transformations) in :

The instrument	Energy used	Energy produced
Water from waterfalls	.....	.....
Simple pendulum	.....	.....
Simple electric cell	.....	.....
Dry cell	.....	.....
Battery	.....	.....
Electric lamp	.....	.....
Car engine	.....	.....

Dynamo (electric generator)	....	....
Car lamps	.....	.....
Car radio cassette	.....	.....
Electric heater of car air conditioner	....	....
Motor	.....	.....
Sewing machine	.....	.....
Washing machine	.....	.....
Electric fan	.....	.....
Solar cell	.....	.....
Television	.....	.....
Cellular phone	.....	.....
Nuclear reactors	.....	.....
Solar heater	.....	.....
Electric heater	.....	.....
Electric bell	.....	.....
Solar battery	.....	.....
Solar furnace	.....	.....
~~Petroleum stove~~	.....	.....

I4 – Mention the (harms – bad effects) caused by :

Technological application	Negative effects (harms)
Car exhaust	....

Military explosions	....
Chemical pesticides	....
Nuclear weapons	....
The webs of wireless transmitters of cellular phones	....
Loudspeakers	.....

I5 - Put (√) or (x) then correct the false statement :

1 – Density = Mass x Volume

2 – Melting point is the temperature at which the matter changes from solid phase to liquid one

3 – Wood and plastic are bad conductors of heat

4 – Iron rusts when it is exposed to dry air

5 – The molecule is the smallest part of matter which can exist in a free state and keep the properties of the matter

6 – The distance among solid molecules are very small

7 – The attraction force among molecules of solids is very small

8 – The molecules of solid substances vibrate in a simple vibratory motion

9 – Gaseous matter **keeps** its shape and volume whatever the container changes

10 – Liquids have definite shapes and volumes

11 – The **motion** of **gas** molecules is **limited**

12 – **Molecules** of the **same** substance are **different** from each other

13 – Molecules consist of atoms

14 – Mercury is from solid metals (elements)

15 - The compound consists of combination of atoms of one element

16 – The chemical symbol of sulphur is (C)

17 – Neutrons exist in the atom and carry positive charges

18 – In car lamps, the electric energy changes into light energy

19 – Bean plant is considered from dicotyledon

20 – Animals can be classified according to the nature of body supporting

21 – Human belongs to one species although he differs in colour or race or home

22 – Activity of birds during the day light and bats at night is a function adaptation

23 – All mammals walk on foul limbs

24 – Insectivorous plants are **heterotrophic**

25 – Bird's migration is **an acquired** behaviour

Ib - Choose the correct answer :

1 – The **colour** property is **a distinguishing factor** between.....

a. table salt and flour
b. iron and gold
c. oxygen and nitrogen
d. oxygen and carbon dioxide

2 – The **taste** property is **a distinguishing factor** between.....

a. milk and honey
b. wood and plastic
c. silver and gold
d. oxygen and nitrogen

3 – The **smell (odour)** property is **a distinguishing factor** between.....

a. iron and copper
b. vinegar and perfume
c. wood and plastic
d. silver and iron

4– **Density** of **red copper** is 8.8 **gm/cm³** means.....

a. the mass of the volume unit of red copper equals 8.8 gm
b. the mass of the volume unit of red copper doesn't equal 8.8 gm
c. the mass of 10 cm^3 of red copper equals 8.8 gm
d. the mass of the volume unit of red copper equals 0.8 gm

5 – The **volume** of **a liquid** can be calculated from the **relation**.....

a. mass/density
b. density/mass
c. mass x density
d. (a) or (b)

6 - .....is from the substances that **float** on the water surface

a. Iron
b. Copper
c. Cork
d. Aluminium

7 – The balloons that are filled with **helium gas** in celebrations, rise up in air because....

a. density of helium is more than that of air
b. density of helium equals that of air
c. density of helium less than of air
d. no correct answer

8 – The property of **electric conduction** is **a distinguishing factor** between.....

a. iron and copper
b. iron and wood
c. wood and plastic
d. no correct answer

9 – The **attraction force** among **solid** molecules is.....

a. weak
b. very strong
c. very small
d. no correct answer

10 – The.....matter **doesn't take** the **shape** of its container

a. solid
b. liquid
c. gaseous
d. (b) and (c)

11 – From **inert (inactive)** gases is.....

a. nitrogen
b. helium
c. oxygen
d. hydrogen

12 – Water molecule is composed of.....

a. one hydrogen atom and two oxygen atoms
b. one hydrogen atom and two nitrogen atoms
c. one oxygen atom and two hydrogen atoms
d. two hydrogen atoms and two oxygen atoms

13 – The **atom nucleus** contains.....

a. protons and neutrons
b. Protons and electrons
c. neutrons and electrons
d. Protons, neutrons and electrons

14 - .....are **negatively charged particles** that **revolve around** the **nucleus**

a. Electrons b. Neutrons c. Beta particles d. Protons

15– The **mass number** of the atom of an element equals.....

a. number of protons and electrons
b. number of protons and neutrons
c. number of electrons and neutrons
d. (b) and (c) are correct answer

16 – When **atomic number** of an element **equals** its **mass number**. This means that there **aren't**.....in the **nucleus** of the **atom** of this element

a. electrons
b. neutrons
c. protons
d. all the previous answers

17 – The **third energy** level is **saturated** with.....electrons

a. 2
b. 18
c. 32
d. 8

18 - .....is **a permanent** source of energy

a. Petrol
b. The Sun
c. Coal
d. Wind

19 – **Chemical** energy is **stored** in the.....

a. car battery
b. stretched spring
c. raising a load upwards
d. car lamps

20 - **Weight** of the **body** on the **Earth** equals.....

a. mass + gravity acceleration
b. mass – gravity acceleration
c. mass x gravity acceleration
d. mass ÷ gravity acceleration

21 – **Potential** energy equals.....

a. weight x height
b. mass x height
c. weight x speed
d. no correct answer

22 – The **mechanical** energy is the **sum** of.....energies

a. light and kinetic
b. heat and potential
c. potential and height
d. kinetic and potential

23 – When an object falls from **up** to **down,** the.....

a. kinetic energy increases gradually
b. potential energy increases gradually
c. speed of the object decreases gradually
d. mechanical energy is lost during falling

24 – When an object is **thrown** (**launched**) **upwards**, its.....

a. speed increases gradually
b. speed decreases gradually
c. kinetic energy increases gradually
d. potential energy decreases gradually

25 – In the **simple pendulum**, there is **an energy transformation** from.....

a. mechanical energy changes into sound energy
b. mechanical energy changes into light energy
c. potential energy changes into kinetic energy and vice versa
d. kinetic energy changes into heat energy

26 - In the **filament** of the **electric lamp**, the.....

a. electric into mechanical energy
b. electric into heat energy
c. light into heat energy
d. chemical into light energy

27 – Chemical energy – Heat energy – Mechanical energy

The **sequence** of **energy changes** shown in the diagram explains.....

a. flashing is on
b. candle when burns
c. gasoline burns to power a car
d. photosynthesis process

28 – When **car lamps** and **radio cassette** are **on**, there is a change in **car battery** from..

a. chemical into light energy
b. chemical into electric energy
c. chemical into sound energy
d. chemical into kinetic energy

29 – **Energy** is **neither** created **nor** destroyed but it can be transformed into another form, this law is known as.....

a. conservation of energy
b. conservation of matter
c. kinetic energy
d. (a) and (b)

30 – The **electric** energy is converted into **kinetic** energy in the.....

a. electric lamp
b. electric fan
c. electric bell
d. cellular phone

31 – In the **solar cells**, the solar energy changes into.....energy

a. kinetic
b. electric
c. thermal
d. sound

32 – The **role** of the **technological applications** is **represented** in.....

a. using energy resources and converting energy from on form to another
b. creating energy from nothing
c. storing energy as its form is
d. illustrating energy forms

33 – The **mechanical** energy is converted into **thermal (thermal)** energy by.....

a. the electric generator (dynamo)
b. the water heater
c. friction between moving objects
d. the electric motor

34 – If you **mix** 10 **ml** water of 20°**C** with 10 **ml** tea of 80°**C,** the **expected** temperature is

e. 20°C f. 80°C g. 50°C h. 90°C

35 – Heat is transferred through **solids** by.....

a. conduction and convection
b. radiation and convection
c. radiation only
d. conduction only

36 – Heat is transferred by **convection** through.....

a. gases only
b. solids and gases
c. liquids and gases

37 – Heat is transferred through **gases** by.....

a. conduction
b. convection
c. radiation
d. (b) and (c) are correct answers

38 – Heat is transferred by **radiation** takes place through.....

a. liquids only
b. material and non-material media
c. gases only
d. metals only

39 – Heat transfers from **a heater** by.....

a. conduction and radiation
b. convection only
c. radiation only
d. convection and radiation

40 – At home, when the **gas stove (oven)** is working, there is a change from.....

a. heat energy into chemical energy
b. chemical energy into heat one
c. chemical energy into sound energy
d. light energy into heat one

41– In **solar heater**, the **solar** energy is directly converted into.....energy

a. light b. electric c. heat d. kinetic

42 – The **Sun** is.....

a. a resource of permanent energy
b. a resource of non-permanent energy
c. no an energy resource
d. produce no energy

43 – In **photosynthesis** process, the solar energy is changed into.....energy

a. heat b. chemical c. electric d. light

44 - .....is an example of **plants** that reproduce by **spores**

a. Wheat b. Vougheir c. Bean d. Pine

45 – **Pea** plant belongs to.....

a. ferns
b. moonocotyledon
c. dicotyledon
d. gymnosperms

46 - .....(is) are from the **animals** that **don't** have support

a. Reptiles
b. Snails
c. Jelly fish
d. Cartilaginous fish

47– The **number** of **pairs** in **spider** legs is.....

a. one b. two c. three d. four

48 – Scorpion belongs to.....

a. myriapods b. arachnids c. edentates d. insects

49 - .....is from **myriapods** arthropods

a. Spider b. Scorpion c. Bee d. Julius

50 – In **rodents**, the **number** of **incisors** in the **upper** jaw is.....

a. 1 b. 2 c. 3 d. 4

51 – The number of **anterior** fingers of **hawk** is.....**finger(s)**

a. 3 b. 4 c. 2 d. 1

52 – .....is from living organisms that undergoes **hibernation**

a. Frog
b. Jerboa
c. Desert snail
d. (a), (b) and (c)

53 - .....is from **rodents** that undergo **aestivation**

a. Rat b. Squirrel c. Jerboa d. Desert snail

I7 – Choose the odd word out – write the scientific term :

1 – Density/ Mass / Force / Volume (.....)

The scientific term for others :.....

2 – Petroleum / Wood / Cork / Iron (.....)

The scientific term for others :.....

3 – Wax / Aluminium / Butter / Ice (.....)

The scientific term for others :.....

4 – Acidic solution/alkaline solution/ sugary solution / salt solution (.....)

The scientific term for others :.....

5 – Silver / Chromium / Potassium / Platinum (.....)

The scientific term for others :.....

6 – Water – Oil – Alcohol – Water vapour (.....)

The scientific term for others :.....

7 – Neon – Argon – Xenon - Hydrogen (.....)

The scientific term for others :.....

8 – Water – Aluminium – Magnesium – Fluorine (.....)

The scientific term for others :.....

9 – Oxygen – Nitrogen – Water – Chlorine (.....)

The scientific term for others :.....

10 – Ammonia – Water – Aluminium – Hydrogen chloride (.....)

The scientific term for others :.....

11 – Protons – Neutrons – Electrons – Quantum (.....)

The scientific term for the remaining words :.....

12 – $_{11}^{23}Na$ – $_{13}^{27}Al$ - $_{17}^{35}Cl$ – $_{20}^{40}Ca$ (.....)

The scientific term for the remaining words :.....

13 – $_{3}Li$ – $_{11}Na$ – $_{12}Mg$ – $_{19}K$ (.....)

The scientific term for the remaining words :.....

14 – $_{20}Ca$ – $_{16}S$ – $_{7}N$ – $_{18}Ar$ (.....)

The scientific term for the remaining words :.....

15 – $_{2}He$ – $_{10}Ne$ – $_{18}Ar$ – $_{13}Al$ (.....)

The scientific term for the remaining words :.....

16 – Conduction – Convection – Friction – Radiation (.....)

Scientific term for other words :.....

17 – Sun – Coal – Petrol – Natural gas (.....)

Scientific term for other words :.....

18- Solar heater – Electric stove – Coal fire – Solar cell (.....)

Scientific term for other words :.....

19 – Solar furnace – Solar oven – Solar heater – Solar battery (.....)

Scientific term for other words :.....

20 – Fish – Crocodiles – Lions – Hippopotami (.....)

The scientific term for the rest words : .....

21 – Amoeba – Euglena – Paramecium – Snake (.....)

The scientific term for the rest words : .....

22 – Palm – Vougheir – Adiantum – Ferns (.....)

The scientific term for the rest words : .....

23 – Wheat – Pea – Corn – Bean – Pine (.....)

The scientific term for the rest words : .....

24 – Wheat – Maize – Corn – Bean (.....)

The scientific term for the rest words : .....

25 – Octopus – Desert snail – Mussels – Frog – Tilapia fish (.....)

The scientific term for the rest words : .....

26 – Desert snails – Mussels – Birds (.....)

The scientific term for the rest words : .....

27 – Reptiles – Snails – Birds – Mammals (.....)

The scientific term for the rest words : .....

28 – Scolopendra – Bee – Rabbit – Julius (.....)

The scientific term for the rest words : .....

29 – Cockroach – Fly – Scorpion – Locust – Mosquito (.....)

The scientific term for the rest words : .....

30 – Ants – Mosquitoes – Spiders – Flies (.....)

The scientific term for the rest words : .....

31 – Lion – Tiger – Dog – Wolf – Armadillo (.....)

The scientific term for the rest words : .....

32 – Rat – Rabbit – Squirrel – Sloth – Jerboa (.....)

The scientific term for the rest words : .....

33 – Jerboa – Rat – Rabbit – Squirrel (.....)

The scientific term for the rest words : .....

34 – Function adaptation – Food adaptation – Anatomical adaptation – Behavioural adaptation (.....)

The scientific term for the remaining words :.....

35 – Secreting honey related to bees – Secreting poison related to snakes – Feathers related to birds – Secreting sweat related to human (.....)

The scientific term for the remaining words :.....

36 – Walking – Swimming – Flying – Climbing – Respiration (.....)

The scientific term for the remaining words :.....

37 – Whales – Bats – Dolphins – Sea lions (.....)

The scientific term for the remaining words :.....

38 – Ducks – Hawks – Vultures – Crow (.....)

The scientific term for the remaining words :.....

39 – Geese – Sea lion – Ducks – Swan (.....)

The scientific term for the remaining words :.....

40 – Dieonea – Drosera – Elodea – Halophila (.....)

The scientific term for the remaining words :.....

41 – Extinction – Aestivation – Hibernation – Camouflage (.....)

The scientific term for the remaining words :.....

42 – Frogs – Jerboa – Reptiles (.....)

The scientific term for the remaining words :.....

43 – Desert snail – Jerboa – Toads (.....)

The scientific term for the remaining words :.....

I8 - Mention one difference between each of the following :

1 – Pine and palm trees

.....

2 – Bean and wheat

.....

3 – Insects and arachnids

.....

4 – Rodents and lagomorphs

.....

5 – Rabbit and squirrel

.....

19 - What is the measuring unit(s) of the following :

1 – Density (.....)

2 – Mass (.....)

3 – Volume (.....)

4 - Work (.....)

5 – Force (.....)

6 – Displacement (.....)

7 – Weight (.....)

8 – Mass (.....)

9 – Acceleration due to gravity (.....)

10 – Potential energy (.....)

11 – Kinetic energy (.....)

12 – Speed (.....)

13 – Mechanical energy (.....)

20 – What is the mathematical relation (formula) between :

1 – Density, mass and volume :.....

2 – Displacement, work and force :.....

3 – Weight of an object and its mass :.....

4 – Weight, potential energy and height :.....

5 – Kinetic energy, mass and speed :.....

6 – Kinetic, mechanical and potential energies :.....

2l – Problems :

1 – Complete the following table :

Substance	Mass (gm)	Volume (cm^3)	Density (gm/cm^3)
A	22	.....	2
B	5	20	.....
C	.....	15	1

2 – In **an experiment** for **determining** the **density** of **water**, the **following results** were **recorded**

- **Mass** of **an empty** beaker = 65 **gm**
- **Mass** of the **beaker** and the **water** = 165 **gm**
- The **volume** of **water** = 100 **cm^3**

Calculate the **density** of **water**

3 – When **a piece** of **iron** of **mass** 78 **gm** is put in a graduated cylinder contains 100 **cm^3** of **water**, the **reading** of the cylinder becomes 110 **cm^3**. Calculate the **density** of **iron**

4 – **A piece** of **metal**, whose **mass** is 25 **gm** and its **volume** is 10 **cm^3**. When it is placed in **water** it will.....(Knowing that the **density** of **water** is 1 **gm/cm^3**)

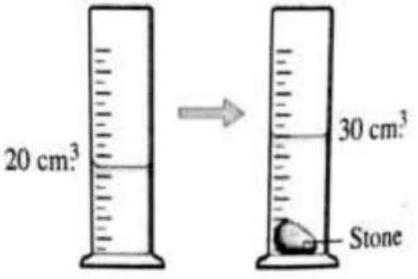
a. float b. sink c. suspend d. dissolve

5 – **A cube** of **wood**, whose ***length*** of ***side*** is 2 **cm** and its **mass** is 6 **gm**.**Calculate** its **density** and does the cube **sink** in **water** or **float** on **its surface**? (Give reason)

(Knowing that the **density** of **water** is 1 **gm/cm^3**)

6 – From the opposite figure :

a. **Calculate** the **volume** of the **piece** of **stone**
b. If the **mass** of the **stone** = 80 **gm**. What is the **density** of this **stone**?
c. If the stone is placed in **a jar** containing **mercury**. Does it ***sink*** or ***float***? **Give reason**



(Knowing that the ***density*** of ***mercury*** is 13.6 ***gm/cm^3***)

7 – **Calculate** the **weight** of a**n object,** whose **mass** is 5 **kg**, if you know that the **gravity** due to **acceleration** is 9.8 **m/sec²**

8 – **Find** the **potential energy** of **an object,** whose **mass** is 5 **kg** when it is found at **a height** of 10 **m** from the ground? (Knowing that the **gravity acceleration** = 10 **m/sec²**)

9 – **Find** the **potential energy** of **a copper ball,** its **volume** 100 **cm³** and its **density** is 8.8 **gm/cm³** when it **raises upwards** at **a height** of 10 m above the Earth's surface. (Knowing that the **acceleration due** to **gravity** = 10 **m/sec²**)

10 – What is the **weight** of **a body,** whose **potential energy** is 88 **Joules** and it is found at **a height** of 11 **m**?

11 – **Find** the **K.E** of an object, its **mass** is 2 **kg** and moving at **a speed** 5 **m/sec**

12 – **Find** the **mass** of a body, its **kinetic energy** is 64 **Joules** and its **speed** is 4 **m/sec**

13 – **Calculate** the **speed** of **a moving body,** it **mass** is 80 **kg** and its **kinetic energy** is 1000 **Joules**

14 – **Calculate** the **mechanical energy** of **a moving object,** if its **kinetic energy** is 1000 **Joules** and its **potential energy** is 5000 **Joules**

15 – **A ball** was **thrown up** and when it **reached** 7 **m**, its **speed** was 8 **m/sec. Calculate** the **potential energy**, **kinetic energy** and the **work done (mechanical energy)** it. If you know that the **ball's weight** is 5 **N** and its **mass** 0.5 **kg**

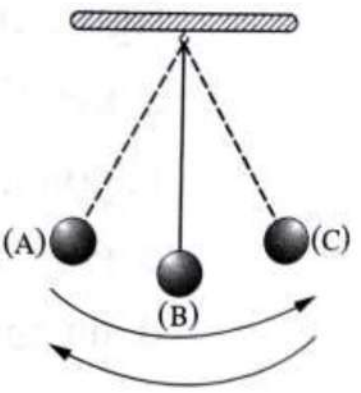
16 – **A stone,** its **mass** is 5 **kg** is thrown from **a height** of 8 **m**. **Find** its **potential energy** and its **kinetic energy**

a. At the **beginning** of falling
b. When reaching **middle** of height
c. After reaching at **a height** of **2 m**.
d. When the stone reaches the **Earth**

(Knowing that the **acceleration** due to **gravity** = 10 **m/sec²**)

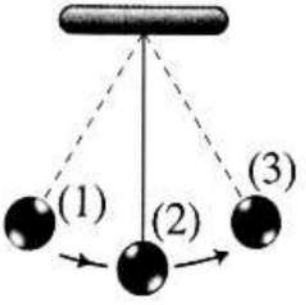
17 – From the opposite figure, **complete** the following table

Knowing that the **mechanical** energy at **point** (A) = 150 **joules** and **K.E.** at **point** (B) = 100 **joules**



Position	Kinetic energy	Potential energy
A	.....	.....
B	.....	.....
C	.....	.....

18 – In the shown figure, if the **mechanical energy** of the **pendulum** is 40 **joules**. **Find** the **potential** and **kinetic** energies at **position (1)**



.....

.....

.....

19 – **A moving pendulum** has **a potential energy** of 0.8 **joule** at **maximum height**. If the **mass** of its **ball** is 0.08 **kg** and **acceleration** due to **gravity** is 10 **m/sec²**. **Find**

a. The **height** of the pendulum's ball at **maximum displacement**
b. The **kinetic energy** of the ball of such point

22 – Study the following figures, then answer :

1 – **Study** the figure and **answer** the following questions

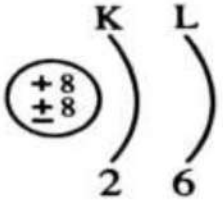


Fig. (A)

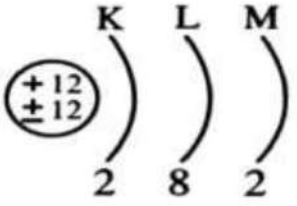


Fig. (B)

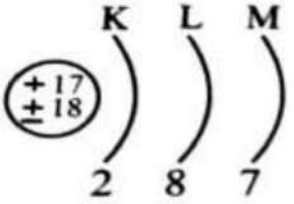


Fig. (C)

a. What is the **atomic number** of each atom?

.....

b. What is the **mass number** of each atom?

.....

c. What is the **number** of **electrons** in the **outermost energy level**?

.....

d. What is the **number** of **energy levels** having **electrons** in each atom?

.....

2 – What are the **sources** and **forms** (**types**) of energy?

a. **Sources** of energy :

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

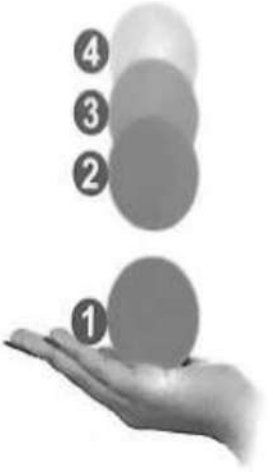
b. **Forms** of energy

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....

3 – In the opposite figure :

A. The **maximum value** of the **potential energy** is at position..

a. 1
b. 2
c. 3
d. 4



B. The **maximum value** of the **kinetic energy** is at position...

a. 1
b. 3
a. 2
c. 4

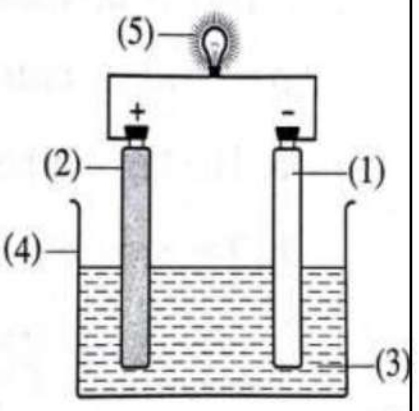
C. The **mechanical energy** is equal to.....

a. Kinetic energy at 1 + potential energy at 2
b. Kinetic energy at 1 + potential energy at 4
c. Kinetic energy at 2 + potential energy at 2
d. Kinetic energy at 4 + potential energy at 2

4 – From the opposite figure, **answer** the following questions

a. What is the **name** of the opposite **device**?

.....



b. **Label** the figure :

1. .....
2. .....
3. .....
4. .....
5. .....

c. **Mention** the **scientific idea** of this device?

.....

d. **Mention** the **structure** of this device?

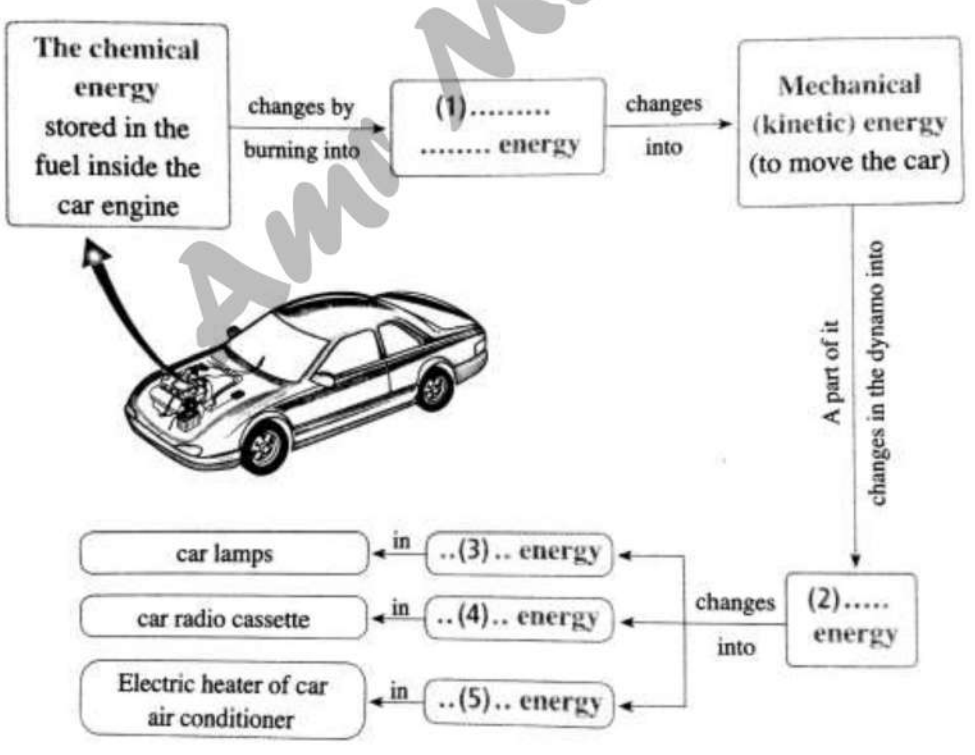
.....

.....

.....

.....

5 – Complete the following diagram :



THANK YOU

Final revision

Prep 1 — First term

(1) Give reasons for:

(1) A piece of wood or oil floats on water surface, while a piece of lead sinks in it.
- Because the density of wood is less than that of water, while the density of lead is more than that of water.

(2) A piece of ice changes into water after a period of time when it is left in air.
- Because its melting point is low.

(3) Iron rods not copper rods are used in building concrete houses.
- Because the hardness of iron is more than that of copper

(4) An electrician uses a screwdriver made up of steel iron with a plastic handle.
- Because steel iron is very hard and a good conducter of electricity, while plastic is a bad conductor of electricity.

(5) The odour of perfume spreads all over the room when the bottle is opened
- Because the molecules of the perfume are in a continuous motion and they keep the properties of the perfume.

(6) Disappearance of a little amount of table salt when it is put in a beaker containing water for a period of time.
- Disappearance of sugar when it is dissolved in water
- Because molecules of table salt or sugar spread in the intermolecular spaces among water molecules.

(1) Give reasons for

(7) the volume of a mixture of water and alcohol is less than the sum of their volumes before mixing.
- On adding 300 cm^3 of water to 200 cm^3 of alcohol, it was found that their volumes together became less than 500 cm^3.
- Because some molecules of alcohol occupy the intermolecular spaces among water molecules.

(8) It is difficult (to break down → fragmentize) a piece of iron with your hand. or bend an iron rod)
- Because there are strong attraction forces among iron molecules

(9) It is easy to divide an amount of water into smaller parts.
- Because there are weak attraction forces among water molecules.

(10) the atom is electrically neutral.
- Because the number of negative electrons that revolve around the nucleus is equal to the number of positive protons in the nucleus.

(11) the mass number is usually greater than the atomic number.
- Because the mass number is the sum of numbers of protons and neutrons in the nucleus, while the atomic number is the number of protons only.

(12) Electrons are distributed to fill the "K" level before filling the "L" level.
- Because the energy of "K" level is less than that of "L" Level.

Give reasons for

(13) the energy level "M" in the atom isn't saturated by more than 18 electrons.

- the third energy level in the atom is saturated with 18 electrons.

- Because the energy levels are saturated with electrons according to the rule ($2n^2$), So the number of electrons that saturate "M" level $= 2 \times (3)^2 = 18$ electrons

(14) The rule ($2n^2$) is not applied on the energy levels greater than four.

- Because the atom becomes unstable if the level contains more than 32 electrons.

(15) Inert gases (can't share in chemical reactions in ordinary state. are chemically inactive elements)

- The atoms of inert gases are stable.

- Because the outermost energy levels of their atoms are completely filled with electrons.

(16) Neon atom ($^{20}_{10}Ne$) doesn't take part in the chemical reaction, while nitrogen atom ($^{14}_{7}N$) takes part in the chemical reaction.

- Because the outermost energy level of neon atom is saturated with 8 electrons, while outermost energy level of nitrogen has 5 electrons and it tends to complete it to be stable

(17) Substances have different chemical properties

- Because molecules of various substances differ from each other in : (a) number of atoms (b) Kind of atoms (c) way of combination between atoms

G.R.

18. The nucleus has a positive charge.
- Because it contains protons which are positively charged and neutrons which are electrically neutral.

19. Water is not used to put out petrol fires.
- Because the density of petrol is less than that of water so, Petrol floats on water surface and water doesn't put out the petrol fires.
(put out = Extinguish)

20. Cooking pots have handles made up of wood.
- Because wood is a bad conductor of heat.
- Cooking pots are made of aluminium.
- Because aluminium is a good conductor of heat.

21. The mass of the atom is concentrated in it's nucleus.
Because the electron has a negligible mass relative to that of the proton or neutron.

22. Balloons which filled with (helium) gas rise up in air.
Because the density of helium is less than the density of air

23. It is easy to shape metals, while it is difficult to shape sulphur.
Because metals become soft by heating, so it's easy to shape them, while Sulphur doesn't soft by heating, so it is difficult to shape(it).

(24) The fuel inside the car is similar to the food inside the body of a Living organism
- Because burning each of them produces energy which makes the car moves (do work) and the Living organism makes its vital processes (do work).

(25) Ecologists do not appreciate all the technological applications which are used in energy transformations.
- Because some of these applications have negative effects on the environment.

(26) The freezer is found at the top of the fridge.
Because when air is cooled, its density increases, so it falls down to cool the food in the refrigerator, and the hot air rises upto be cooled again and so on.

27. the air conditioner is fixed at the upper part of the room.
- Because when air is cooled, its density increases, (So) it falls down to cool the room, and the hot air rises up to be cooled again and so on.

placed (on) the ground
(28) Heater is put at the bottom of the room)
- Because when air (around the heater) is heated, its density decreases, so it rises up to warm the room, while the cold air falls down to be heated again and so on.

C.R.

29. Nuclear stations which produce electricity are preferred to those of petrol stations.
Because nuclear stations don't pollute the environment, while petrol stations pollute the environment.

30. A solar heater is preferred than a gas heater or electric heater.
- Because solar heater doesn't pollute the environment and it depends on the sun which is a permanent and cheap resource of energy.

31. (No) changes happen in the potential energy when the objects move horizontally.
Because its height doesn't change.

32. the Kinetic energy will increase four times if the speed of the moving object is doubled.
Because the Kinetic energy of a moving body is directly proportional to the square of its speed

33. It is favorable to produce electricity from solar energy than fuel burning.
Because solar energy is a clean source of energy which doesn't pollute the environment and it is a permanent source of energy, while fuel pollutes the environment and it is a non-renewable source of energy.

34. The bike tire gets hot once you press the brakes
Because the Kinetic energy changes into heat energy by friction

C.R.

35. you feel warm when you rub your hands together in winter.
Because the Kinetic energy is converted(into) heat energy by friction

36. The front teeth of hedgehog are extending outwards.
To capture insects.

37. The individuals of the same species (differ in some external characteristics) have different characters
Because each of them has its specific shape.

38. When a zebra mates a donKey, they can't produce fertile individuals.
Because donKey and zebra are from two different species.

39. (Some birds) have long thin beaks and long thin legs ending in thin toes. → The shallow water birds
the beaks are long and thin to pick up worms and snails and their legs are long thin ending in thin toes to walk in existence of water.

40. Some plants pounce and digest insects.
To absorb the nitrogenous substances that their bodies need.

G.R.

41. Some animals (undergo hibernation / hibernate in winter)
- Some reptiles hide in burrows, while frogs bury themselves in mud and stop feeding in winter.
- To overcome the decrease in temperature.

42. Some birds migrate from their original habitats in winter.
- To search some more lighted and warmer regions for reproduction.

43. Camel's limbs end in a thick flat pad.
- To enable the camel wandering through the hot desert sand.

44. the front limbs in the dolphin are different from the bat's ones although they are structured with similar bones.
- Due to the modification of front limbs to suit the way of movement, where in dolphin they are modified into paddles to perform the function of swimming and diving, while in bat they are modified into wings to perform the function of flying.

45. water birds such as ducks and geese have wide indented beaks to help them filter the food from water.
- water birds such as ducks and geese have palm legs. to help them in swimming.

46- Hawks and vultures have strong and sharp crooked beaks
To enable them to tear the prey's flesh.
- Hawks and vultures have four fingers ending in strong and sharp claws, three anterior (front) fingers and one posterior (back) bendable.
To control pouncing the prey.

47- Spider is not from insects.
- Because Spider is characterized by the presence of four pairs of jointed legs,
while insects are characterized by the presence of three pairs of jointed legs.

48- (Pine plant) or cycas is a gymnosperm.
- Because its seeds are formed inside cones and not inside a pericarp (fruit envelope).

49- Maize and bean are Angiosperms (flowering plants)
- Because their seeds are formed inside fruit envelope (a pericarp).

50- Bat can fly although it is from mammals
- Because its front limbs are modified into wings to perform the function of flying.

G.R.

51- Amoeba, Euglena and paramecium are classified(as) micro-organisms.
-Because they are unicellular organisms that can be seen only by the microscope.

52. Vougheir and adiantum plants are classified as fern plants
-Because they are considered as small terrestrial plant which reproduces by formation of spores.

53. the body of Jelly fish and Octopus is Soft
-Because their bodies don't have support.

54. Sloth and armadillo are classified as edentate animals.
-Because they have no teeth.

55. Rat is from rodents
-Because it has one pair of incisors in each jaw.

56. Rabbit is from Lagomorphs.
Because it has two pairs of incisors in the upper jaw and one pair in the lower jaw.

57. Horse hoof (hoof) ends in a strong solid end
-To(help)the horse go through the rocky soil

58. the front Limbs in the horse are modified into legs. To perform the function of running

59. the long arms in monkeys are due to elongated of the bones of the front limbs and fingers
To perform the function of climbing trees and catching things.

60. Animals become dormant and hide in humid burrows as jerboa, desert snail and some insects.
To overcome the extreme rise in temperature and the shortage of water and rains.

61. Leaf insect looks like the leaf of the plant
. Stick insect looks like the branches of the plant
To be hardly discovered by its enemies

62. Chameleon colours itself with the dominant colour of the environment
To be hidden from its preys of insects.

(2) Complete the following statements

(1) The measuring unit of mass is ..., while ... is the measuring unit of volume — gm, cm^3

(2) The density is the ... of unit volume of a substance and its measuring unit is ... — mass, gm/cm^3

(3) An alloy of ... is used in making jewels, while an alloy of ... is used in making heating coils. — (Copper - gold), (nickel - chrome)

An alloy of .... is used in making cooking pots — Stainless steel

(4) ... and ... are good conductors of electricity and heat, while ... and ... are bad conductors of electricity and heat. — Copper and iron, wood and plastic

or metallic bridges

(5) (Light posts in streets) are painted from time to time to be protected from ... — rusting

Complete

6. ... take the shape of the container, while ... has no definite shape. ... have definite shape. — liquids, gas, solids

7. Matter consists of small building units called ..., which consist of smaller building units called .... — molecules, atoms

8. The liquid element which consists of one atom is ..., while that consists of two atoms is ... — mercury, bromine

9. (Hydrogen molecule) is composed of ... atom(s), while (argon) molecule is composed of ... atom(s). (or nitrogen; or Helium) — two, one

10. The monoatomic liquid is ..., while ... is diatomic liquid. — mercury, bromine

11. The symbol of sodium is ..., while that of gold is ... Sulphur symbol is ... — Na, Au, S

12. The nucleus of (an) atom contains (positive) ... and (neutral) ... the charge of electrons is ... — protons, neutrons, (negative)

13. Copper-gold alloy is used in making .... — jewels

14. The molecule of water consists of ... and ... — two hydrogen atoms, one oxygen atom.

15. In melting process, solid molecules ... energy and change into ... state. — gain, liquid

Complete

16- Electric cables are made up of ... or ... — copper - aluminium

17- Equal masses of different substances have different ... and ... — volumes densities

18- ..... is from inactive metals — gold

18 from very active metals ... and ... — Sodium Potassium

19- During vaporization process, liquid molecules ... energy and converted into ... state. — gain gaseous

20- Heat is transferred through (gases or liquids) by ..., while transferred through solids by ... — convection conduction

21- The mass of the atom is concentrated in the ... — nucleus

22 the intermolecular forces among molecules of solids are ... and in gases are ... — very strong - very weak (vanishing)

23- When an electron transfers from an energy level near the nucleus to a higher one, it ... a quantum of energy and the atom becomes ... atom. — gains excited

24- the molecule of hydrogen chloride consists of one atom of ..., and one atom of ... — chlorine hydrogen

25- ... is soft at room temperature, while ... can't be soften. — Rubber Coal

26- The symbol of potassium (atom) is ..., while the symbol of silver atom is .. — K Ag

Complete

27- .... solution is a good conductor of electricity, but .... solution is a bad conductor of electricity. — Acidic / Sugary

28- Potassium K has .... electron/s in the outermost energy level (19), but Ar has .... electron/s in the outermost energy level (18). — one / eight

29- The product that results from a combination of atoms of different elements with constant weight ratios is ... — compound

30- In solar cell ... energy changes into ... energy — Solar / electric

31- (In the dry cell), ... energy changes into (electric) energy. (or simple cell) — chemical

32- At highest point of the pendulum, the ... energy is maximum but ... energy is Zero. — Potential / Kinetic

33- When (a) body is (raised up), the potential energy ...., while (the Kinetic energy) ... (or the speed) (launched upwards) — increases / decreases

34- Energy is the ability to do ... and its measuring unit is ... — work / Joule.

35- For a truck and a small car moving at the same speed, Kinetic energy of the truck is .... than the Kinetic energy of the car. — greater

Complete

36- Movement of particles (and) friction between them produce .... energy. — heat

37- ... is the main source of energy on the Earth's surface and it is a permanent energy resource. — the sun

38. The energy stored in the food is .... energy, while .... energy is produced from the dry cell. — chemical / electric

- .... energy is changed into electric energy in the battery — chemical

39- In photosynthesis process ... energy changes into .... energy. — solar / chemical

40- Potential energy = ... X .... — weight - height

- the potential of an object depends on ... and ... — its weight - its height

41- the electrons revolve around the nucleus in orbits known as .... — energy levels

42- Kinetic energy = $\frac{1}{2}$ X ... X ... — mass - (speed)^2

- Kinetic energy increases by increasing ... and ... of the object — mass / speed

43- Weight = ... X ... — Mass - acceleration due to gravity

44- Heat transfers from the sun to the Earth by ... — radiation

- Heat transfers through non-material media by .... — radiation

45- If the height of an object increases to double, its potential energy increases to ... — double

46- In the (car) dynamo .... energy is changed into ... energy. — Kinetic (mechanical) / electric

Complete

47. friction turns kinetic energy into ... energy.	heat
48. the simple cell consists of ... solution and two different metals.	acidic
49. An object of mass 2Kg is moving at a speed of 4 m/s has (a) kinetic energy ...	16 joules
50. Electric energy is converted into kinetic energy in ...	electric fan
51. the number of energy levels in the largest known atom is ...	seven
52 An object of 20N weight is placed at a height of 5m, has potential energy equals.	100 joules
53. Heat is transferred in three methods which are ..., ... and ...	conduction, convection, radiation
54. ... and ... are from principles used in classifying plants	External shape - way of reproduction
55. Plants may carry large-sized leaves such as ... and some have small-sized leaves such as ...	... banana moulokhiya
56. ..., ... and ... are examples for micro-organisms (that) live in water	- Amoeba, euglena, paramecium

Complete

57 ... is from the plants that reproduce by formation of spores, while ... is from the plants that reproduce by formation of seeds inside cones (gymnosperms) — Adiantum; Pine plant

58 Arthropods animals are classified according to the number of legs into ...., ... and .... — insects, arachnids, myriapods

59 ... and ... belong to teethless mammals. — sloth, armadillo

60 (Armadillo or sloth) is one of the .... mammals and hedgehog is one of the .... mammals. — teethless; teethed

61 The number of jerboa's upper jaw incisors is .... and their number in the rabbit's upper jaw is .... — one pair; two pairs

62 ... is the basic unit of classification of living organisms. — species

63 Horses' limbs end in ... to run over rocky soil, whereas camels' Limbs end in .... to walk on hot sandy soil. — strong solid hoof; thick flat pad

64 The whale's front limbs are modified into .... (to take the role of ... (to help (it) to ...), whereas they are modified in the bat into ... to take the role of .... — paddles; swimming; wings; flying

Complete

65 Hawks have ... beaks to tear the prey's flesh, while ducks have ... beaks to help them filter their food from water.
- strong and sharp crooked
- wide indented

66 ..., ... and ... are examples of insectivorous plants.
- Dieonea -
- drosera -
- halophila

67 - Insects have ... pairs of jointed legs as ...
- three
- ant

68 - Birds migration is ... adaptation
- behavioural

69 - the beaks of birds that feed (on) aquatic snails and worms are ... and ...
- long - thin

70 - the cockroach belongs to ..., while the (scorpion) belongs to ... or spider
- insects
- arachnids

(-) (Julius) belongs to ... or Scolopendra
- Myriapods

71 Animals with external support such as ... and ...
- mussels
- snails

72 from the animals that have (soft body) (no body support) ... and ...
- Jellyfish
- Octopus

73 - plants that reproduce by formation of seeds are divided into ... and ...
- gymnosperms
- angiosperms

74 - from the example of huge tree is ...
- camphor

75 - Arachnids have ... pairs of jointed legs
- four

76 - Jerboa undergoes ... to overcome the ... in temperature.
- aestivation
- extreme rise

Complete

77- ..... has an internal support. - fish

78- spiders are classified from ..... - arachnids -
but ..... is classified from myriapods - Scolopendra

79- The frog is an example for ....., (animals undergo hibernation)
while jerboa is an example for ..... (animals undergo aestivation)

(3) Give one example for:

1- A gas, whose density is lower than that of air - hydrogen or helium

2- A substance that has a low melting point - wax.

3- A substance that has a high melting point - Iron

4- An alloy that is used in making jewels - copper-gold alloy

5- An alloy that is used in making heating coils - Nickel-chrome alloy

6- An alloy that is used in making cooking pans - stainless steel alloy

7- A solid substance which is soft at room temperature - Rubber

8- A solid substance which doesn't become soft by heating - Coal

9- A substance, whose solution in benzene doesn't conduct electricity - hydrogen Chloride

10- A substance that doesn't conduct electricity - Sulphur

11- A substance that is used to plate other metals - Silver or gold

12- A substance that is used to cover metallic spare parts of cars. - grease

13- A solid matter and a good conductor for heat and electricity - Iron

14- A liquid matter - water

Give one example for

15- A gaseous matter - oxygen gas
16- A liquid element composed of one atom - Mercury
17- A liquid element composed of two atoms - Bromine
18- An active gas - oxygen
19- A nobel gas (a gas which doesn't take part in the chemical reaction) - Argon
20- A compound molecule consisting of three atoms - water molecule
21- " " " " four atoms - Ammonia molecule
22- " " " of two different atoms - Hydrogen chloride
23- An animal of big size - Elephant
24- An animal of small size - rat
25- An animal Lives in water - crocodile
26- An animal lives on Land - Dog
27- A huge tree - camphor
28- Short weeds. - clover
29- A plant carries large-sized leaves - Banana
30- A plant carries small-sized leaves - Molukhiyah
31- An organism that can't be seen by the naked eye and lives in pond water - Amoeba
32- A plant that can't be distinguished into roots, stems and leaves. - Alga
33- A terrestrial (fern) plant (a plant that reproduces by spores) - Adiantum
34- A plant produces seeds in cones - Pine
35- A monocotyledon plant. - Maize
36- A dicotyledon plant - pea
37- An animal with a soft body - Octopus
38- An animal with an external support - Mussel
39- An animal with an internal support - Bird
40- A vertebrate animal - cow
41- An insect - Ant
42- An arachnid animal - spider

Give an example for

43- A myriapod animal - Julius
44- An edentate animal (teethless mammal) - Armadillo
45- An animal whose front teeth are extending outwards. - Hedgehog
46- An animal with pointed canines and molars with sharp projections. - Lion
47- A rodent animal. - Rat
48- An animal with two pairs of incisors (in) its upper jaw and one pair in its lower jaw. - Rabbit
49- A lagomorph animal - Rabbit
50- an animal whose limbs end in a strong solid hoof - Horse
- a mammal animal can run on the rocky soil.
51- An animal whose limbs end in a thick flat pad. - camel
52- Structural (anatomical) adaptation - Camel's Limbs
53- functional adaptation - Secreting poison in some snakes
54- Behavioural adaptation - Birds' migration
55- A mammal animal whose two front limbs are modified into paddles. - whale
56- A mammal animal whose two front limbs are modified into wings - Bat
57- An animal, its front limbs and fingers are elongated - Monkey
58- A predatory bird - Hawk
59- A bird, its beak is strong and sharp - Hawk (or) vulture
60- A bird, whose fingers ending in strong sharp claws - Hawk (or) vulture

Give an example for

61- A bird feeds on worms and snails of shallow water — Hoopoe

62- A bird, whose legs are long and thin — Heron

63- A bird feeds on mosses and fish — Duck

64- A bird, whose beak is wide indented in the two sides — Duck

65- An insectivorous plant — Dieonea

66- Hibernation in amphibia — frog

67- Aestivation in rodents — Jerboa

68- A migratory bird — Quail bird

69- Camouflage in insects — Leaf insect

70- the insect, which looks like the plant leaf exactly in its colour and shape of wings — Leaf insect

71- the insect, which exactly looks like the branches of the plant — stick insect

72- An animal, which colours itself with the dominant colours of the environment to be hidden from its insect predators. — chameleon

73- A solution that is good conductor of electricity — Salt solution

74- A device changes kinetic energy into electric energy — Dynamo

75- plants reproduce by spores — adiantum

76- Unicellular micro-organisms — Euglena

78- Permanent source of energy — the Sun

79- liquid element composed of two atoms — Bromine

80- very active element — Sodium

Give an example to show the adaptation of the following living organisms with the environmental conditions

1- Duck	- its beak is wide indented in the two sides to help it filter the food from water.
2- Heron	- its beak is long thin to pick(up) worms and snails
3- Hedgehog	- its front teeth are extending outwards to capture insects
4- Dieonea Plant	- Some parts of its leaves are adapted and modified to pounce and digest insects to get the needed protein.

(4) Write the chemical symbols of the following elements. Write the name of each chemical symbol

Hydrogen	H	Helium	He	Mercury	Hg
Carbon	C	calcium	Ca	chlorine	Cl
Copper	Cu	chromium	Cr	Oxygen	O
Boron	B	Beryllium	Be	Bromine	Br
Sodium	Na	Nitrogen	N	Neon	Ne
Argon	Ar	Aluminium	Al	Gold	Au

(4) Write the chemical symbols of the following elements. write the name of each chemical symbol

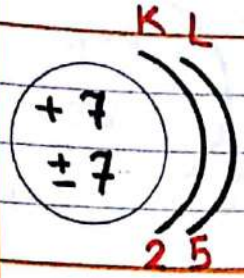
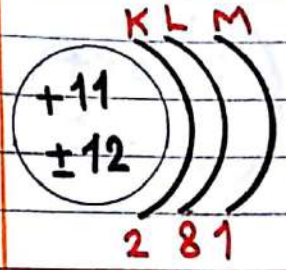
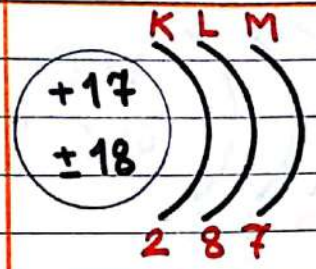
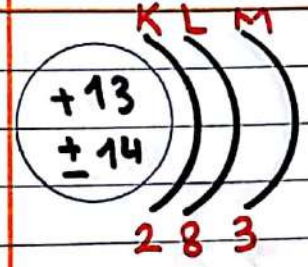
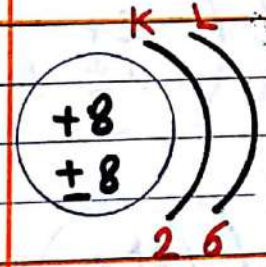
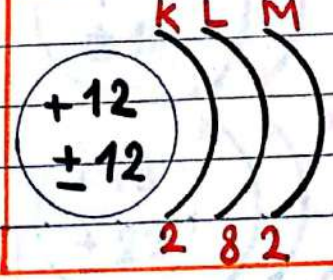
Silver	Ag	Sulphur	S	Silicon	Si
FLuorine	F	Iron	Fe	Iodine	I
Phosphorus	P	Lead	Pb	Lithium	Li
magnesium	Mg	Zinc	Zn	Potassium	K

(5) write the electronic configuration of the following elements then determine each of the following :

1) Atomic number 2) Mass number 3) Number of neutrons
4) number of protons (or electrons)
5) the type of each one (active or inactive) chemical activity

Atom of element	Electronic configuration	Atomic number	Mass number	No. of neutrons	NB. of protons or electrons	chemical activity
Hydrogen $(^{1}_{1}H)$	K: +1, 1	1	1	Zero	1	Active
Helium $(^{4}_{2}He)$	K: +2, 2	2	4	2	2	Inactive (inert gas)

= 25

Atom of element	Electronic configuration	Atomic number	Mass number	No. of neutrons	No. of Protons or electrons	chemical activity
Nitrogen $(^{14}_{7}N)$		7	14	7	7	Active
Sodium $^{23}_{11}Na$		11	23	12	11	Active
Chlorine $^{35}_{17}CL$		17	35	18	17	Active
Aluminium $(^{27}_{13}AL)$		13	27	14	13	Active
Oxygen $(^{16}_{8}O)$		8	16	8	8	Active
Magnesium $^{24}_{12}Mg$		12	24	12	12	Active

= (Atomic number = No. of Protons or electrons)

Atom of element	Electronic Configuration	Atomic number	Mass number	No. of neutrons	No. of Protons or electrons	chemical activity
Patassium ($^{39}_{19}K$)	K L M N: +19, ±20 — 2 8 8 1	19	39	20	19	Active
Calcium ($^{40}_{20}Ca$)	K L M N: +20, ±20 — 2 8 8 2	20	40	20	20	Active
Sulphur ($^{32}_{16}S$)	K L M: +16, ±16 — 2 8 6	16	32	16	16	Active
FLuorine ($^{19}_{9}F$)	K L: +9, ±10 — 2 7	9	19	10	9	Active
Lithium ($^{7}_{3}Li$)	K L: +3, ±4 — 2 1	3	7	4	3	Active
Neon ($^{20}_{10}Ne$)	K L: +10, ±10 — 2 8	10	20	10	10	Inactive (inert gas)
Argon ($^{40}_{18}Ar$)	K L M: +18, ±22 — 2 8 8	18	40	22	18	Inactive (inert gas)

(6) The following figures represent a sketch of the electronic configuration of the atoms of some elements.

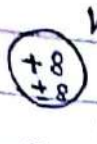


Fig. (1)

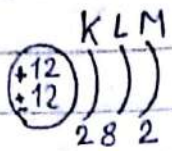


Fig. (2)

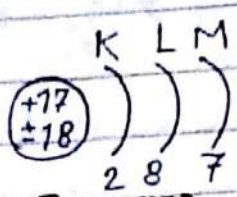


Fig. (3)

Conclude the following in each atom:

	Fig. (1)	Fig. (2)	Fig. (3)
1. Atomic number	8	12	17
2. Mass number	16	24	35
3. No. of electrons in the outermost Level	6	2	7
4. The number of energy levels having electrons	2	3	3

(7) one of your classmates asked you to explain why magnesium $^{24}_{12}Mg$ and sodium $^{23}_{11}Na$ atoms are different in both atomic and mass numbers.

How do you explain this difference?

In $(^{24}_{12}Mg)$: No. of protons = 12, No. of neutrons = 24 − 12 = 12

In $(^{23}_{11}Na)$: No. of protons = 11, No. of neutrons = 23 − 11 = 12

The difference between them is due to the difference in the number of protons

The question doesn't mention the mass numbers of the elements

(8) Write down the electronic configuration of the following elements:

1- ^{11}Na 2- ^{17}CL 3- ^{10}Ne

So, the electronic configuration will include only "energy levels" You don't have to draw ~~the circle of nucleus~~

1) ^{11}Na K L M : 2 8 1

2) ^{17}CL K L M : 2 8 7

3) ^{10}Ne K L : 2 8

* التوزيع الإلكتروني عبارة عن ملء مستويات الطاقة فقط بالإلكترونات دون الحاجة لرسم النواة لعدم كتابة Mass number في السؤال

(9) Problems:

(1) When a piece of iron of mass 78 gm is put in a graduated cylinder containing 100 cm^3 of water, the reading of the cylinder becomes 110 cm^3

Calculate the density of iron.

the answer: Density = Mass / Volume → ??

The volume of the iron = 110 − 100 = 10 cm^3.

The density of iron = Mass / Volume = 78 / 10 = 7.8 gm/cm^3.

(2) What is the weight of a body, whose potential energy is 88 joules and it is at a height of 11 m?

The answer

Weight = Potential energy / Height = 88 / 11 = 8 N.

(3) What is the mass of a body, whose Kinetic energy is 64 joules and its speed is 4 m/sec.?

The answer

Mass = 2 × Kinetic energy / (speed)^2 = 2 × 64 / 4×4 = 8 Kg

PAGE
DATE

(9) Problems.

4- A stone, whose mass is 5Kg is thrown from a height of 8m. find its potential energy and its kinetic energy:

(a) At the beginning of fall | b) After reaching at a height of 2 m.

(the acceleration due to gravity = 10 m/sec²)

The answer

(a)

Weight = Mass X acceleration due to gravity

= 5 X 10 = 50 N

Pot. energy = weight x height

= 50 x 8 = 400 joules

Kinetic energy = Zero

(b)

Pot. energy = weight x height

= 50 x 2

= 100 joules

Mechanical energy = Pot. energy at the maximum height = 400 joules

When the stone reaches the Earth.

Pot. energy = Zero

Kinetic energy = Mechanical energy = 400 joules

Kinetic energ = Mechanical energy − Pot. energy

= 400 − 100 = 300 joules

5- A ball was launched upwards at a speed 5 m/s up to height 6m Calculate the mechanical energy of the ball if its Weight is 40 N and has a mass 5 kg.

The answer

Potential energy = Weight X height = 40 X 6 = 240 joules.

Kinetic energy = $\frac{1}{2}$ x Mass x (speed)^2 = $\frac{1}{2}$ x 5 x (5)^2 = 62.5 joules.

Mechanical energy = potential energy + Kinetic energy

= 240 + 62.5

= 302.5 joules.

6- The mass of an empty beaker = 75gm. where the mass (of) the beaker filled with liquid = 153gm while the volume of the liquid = 100 cm^3
find the density of the liquid.

The answer

The mass of the liquid =
the mass of the (beaker) containing liquid − the mass of the empty beaker

= 153 − 75 = 78 gm.

The density of the liquid = $\frac{\text{Mass}}{\text{Volume}}$

$= \frac{78}{100} = 0.78$ gm/cm^3.

7- A ball was launched upwards and vertically at a speed (3m/s) up to a height (4m). Calculate the mechanical energy of the ball if its weight is (5) newtons and has a mass (0.5 Kg)

The answer

potential energy = Weight × height = 5 × 4 = 20 joules.
Kinetic energy = $\frac{1}{2}$ × Mass × (speed)^2 = $\frac{1}{2}$ × 0.5 × (3)^2 = 2.25 joules
Mechanical energy = P.E + K.E = 20 + 2.25 = 22.25 joules

8- Find the potential energy of an object, whose mass is 6000 (gram) when it is found at a height of (10m) from the ground. (gravity acceleration = 10 m/s^2)

The answer

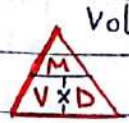
(1) mass = $\frac{6000}{1000}$ = 6 (Kg)
(2) Weight = Mass × acceleration due to gravity = 6 × 10 = 60 N
(3) Pot. energy = Weight × Height = 60 × 10 = 600 joules

9- A graduated cylinder contains (100 cm^3) volume from a liquid its density (0.8 gm/cm^3). Calculate:

1. The liquid (mass)
2. The volume of (4 gram of) the same liquid

The answer

1- the density of the liquid = Mass / Volume



The liquid Mass = Density x Volume

= 0.8 x 100 = 80 gm.

2- The volume of 4 gm = Mass / density

= 4 / 0.8 = 5 cm^3

10- Two objects, object (A) its mass 8 Kg at 6m height from the Earth's surface, and object (B) of weight 50 N at 10 m from the Earth's surface, which of the two objects store more potential energy. (Given the gravity acceleration = 10 m/s^2).

The answer

(1) Weight of object (A) = Mass x Acceleration due to gravity

= 8 x 10 = 80 N

2- P.E. of object (A)

= Weight x Height = 80 x 6 = 480 joules

(P.E. of object (B)) = W x h

= 50 x 10

= 500 joules

∴ object (B) stores More potential energy.

Identify = Define = what is meant by?

To write the Scientific term

1. The temperature at which a substance begins to change from the solid state to the liquid state.
2. The smallest building unit of matter which can exist freely
   - The smallest part of matter which can exist in a free state and keep the properties of matter
3. The spaces that are found among the molecules of matter.
4. The simplest state of matter which can't be decomposed into a simpler one by chemical means.
   - The simplest pure form of matter which can't be analyzed into simpler form.
5. The result of combination between two or more atoms of different elements with constant weight ratios.
6. The fundamental building unit of matter that can take part in the chemical reaction / The smallest unit of matter Construction which reacts chemically.
7. The number of positive protons in the nucleus.
8. The Total Sum of the numbers of protons and neutrons in the nucleus.

Define

1. Melting point

Define

2. Molecule

Define

3. Intermolecular spaces

4. element (its atoms are similar)

its atoms are different

5. the compound

6. the atom

7. Atomic number

Define

8. Mass number

identify = Define = what is meant by?

(10) write the Scientific term

(9) Negatively charged particles of negligible mass that revolve around the nucleus. — 9. Electrons

(10) Imaginary places around the nucleus in which the electrons move according to their energies. — 10. Energy levels

(11) The amount of energy lost or gained when an electron transfers from one energy level to another. — Define 11. Quantum

(12) It is the stored energy in the object due to the work done on it. — Define 12. potential energy

(13) The ability to (do) work or to make change — Define 13. Energy

(14) The ability of some animals to (change their colour to simulate the environment) or be hidden from their enemies — 14. Camouflage

(15) The basic classification unit of the living organisms / It is a group of similar living that can reproduce to give birth of new fertile individuals — 15. Species organisms in shape

(16) The sum of potential energy and kinetic energy of the body. — Define 16. Mechanical energy

(17) Gases that their molecules are composed of one atom only. — 17. inert (inactive) gases

18. changing of matter from solid state into liquid state. — 18. Melting Process

The ability of some living organisms to be hidden from their enemies or to capture the preys in the predatory species (definition of Camouflage.)

identify = Define = what is meant by

(10) write the scientific term

19- Animal that is considered an example for structural, functional and behavioural adaptations.	19. Camel
20- organisms that can't be seen by the naked eye and they spread in air, water and soil	Define 20. Micro-organisms
21- The way by which the heat is transferred through gases and liquids.	21. Convection
22- the behaviour that frogs and toads do in the winter to avoid the low temperature	22. Hibernation
(23) The mass of unit volume of the substance	23. Density
24- A group of animals that have one pair of incisors in each jaw.	24. Rodents
(25) Energy is neither created nor destroyed, but it is converted from one form to another.	25. The Define conservation Law of energy
26- An alloy used in making jewels	26. Copper-gold alloy.
27- The monoatomic liquid molecule	27. Mercury
(28) A temperature at which a substance changes from the liquid state to gaseous state	28. Boiling point

(10) Write the scientific term

29. The ability of some body organs and tissues to do a certain function — Define 29. functional adaptation

30. The way by which heat is transferred from the Sun to the Earth — 30. Radiation

31. The work done during the motion of an object — 31. Kinetic energy

32. It is the heat condition which determines the direction of heat energy whether from or to the object when it comes in contact with another. — Define 32. the temperature

33. It is a modification in the structure of one of body external organs of a living organism to cope with the environmental conditions. — Define 33. Structural adaptation

34. It is the transfer of heat from hot object to another without any need for a material medium through which heat transfers. — 34. Heat transfers by radiation

35. Molecule is composed of three atoms: 2 hydrogen and 1 oxygen. — 35. water molecule

36. the transfer of heat through solid objects from part to another. — 36. Transfer of heat by conduction

37. It is the main source of the most energy resources on the Earth. — 37. the sun

38. The pollution produced from the webs of wireless transmitters of cellular phones — 38. Electromagnetic pollution

39. plants that can't be distinguished into roots, stems and leaves. — 39. Algae

(10) Write the Scientific term

40- A form of energy transfers from higher temperature to lower temperature.

41- Volume measuring unit

42- the type of adaptation when birds migrate from one place to another.

43- A liquid used to Keep Sodium and potassium metals from air.

44- A modification in behaviour, structure of function of a Living Organism to become more adapted with environment.

45- Mass measuring Unit

46- An alloy which is used in meaking heating coils

47- Elements react with atmospheric oxygen when they are exposed to humid air

Define

40. Heat energy

41. cm^3

42. Birds migration

43. Kerosene

44. Adaptation

45. Gram

46. Nickel-Chrome alloy

47. very active metals

(11) Choose the odd word out and write the Scientific term of others:

(1) Wheat - Pea - Corn - Bean - Pine (Pine) [Angiosperms]

(2) Cockroach - fly - spider - Mosquito - Locust (spider) [insects]

(3) Lion - Tiger - Dog - Wolf - Armadillo (Armadillo) [mammals with teeth]

(4) Tilapia fish - Octopus - Desert snail - frog - Mussels (octopus) [Animals with support boddies]

Cross out the odd word

5_ Vougheir _ Bean _ Pea _ Wheat — (Vougheir) [Plants reproduce by formation of seeds]

6_ $_{11}Na$ _ $_{19}K$ _ $_{12}Mg$ _ $_{3}Li$ — ($_{12}Mg$) [elements have one electron in the outermost energy level]

7_ Wood _ Cork _ Ice _ Nail — (Nail) [substances float on water surface]

8_ Evaporation _ Hibernation _ Aestivation _ Birds migration — (Evaporation) [Some forms of adaptation]

9_ Sodium _ Copper _ Aluminium _ Iron — (Sodium) [Less active metals]

10_ $_{6}C$ _ $_{10}Ne$ _ $_{9}F$ _ $_{7}N$ — $_{10}Ne$ — active elements

11_ Dieonea _ Drosera _ Amoeba _ Halophila — Amoeba — insectivorous plants

12_ Whale _ Bat _ Dolphin _ Sea lion — Bat — their front limbs are modified to become paddles

13_ Amoeba _ Euglena _ Clover _ paramecium — Clover — unicellular organisms

14_ Convection _ Melting _ Radiation _ Conduction — Melting — ways of heat transfer

12) Mention the difference between each of the following (comparison)

1) Bean plant or Pea is a dicotyledon plant	Wheat or maize plant is a monocotyledon plant
2) Pine is from gymnosperms	Palm trees are from huge trees
3) Insects have 3 pairs of jointed legs Ex: Ant	arachnids have 4 pairs of jointed legs Ex: Spider
4) Rodents have one pair of incisors in each jaw Ex: Rat	Lagomorphs have 2 pairs of incisors in the upper jaw and one pair in the lower one
5) - Rabbit is a lagomorph animal that has two pairs of incisors in the upper jaw and one pair in the lower jaw.	squirrel is a Rodent animal that has one pair of incisors in each jaw.
6- the electron has negative charge	the proton has positive charge
7- the camel's pad It ends in a thick flat one	the horse's hoof it ends in a strong solid end.
8- Hydrogen Active gas Its molecule consists of 2 atoms	Helium inactive gas (inert gas) Its molecule consists of one atome.

12 mention the difference between

9- Bat	whale according to the adaptation of the front limbs
The front limbs are modified into wings to perform the function of flying	the front limbs are modified into paddles to perform the function of swimming and diving in water.
10. Kinetic energy at maximum height equals Zero	K.E. on reaching the ground is maximum

13 Comparisons

1 Points of Comparison	Solid state	Liquid state	Gaseous state
1. Motion of molecules	Limited motion	More free	completely free
2. Intermolecular spaces	Very Small	Medium	Very Large
3. Intermolecular forces (attraction force)	very strong	Medium	Very weak
4. Volume	Definite	Definite	Indefinite
5. Shape	Definite	indefinite	Indefinite
6. Examples	Iron - ICE	oil - water	oxygen - water vapour

13 Compare between -

2 Bromine	Mercury
Its molecule consists of two atoms -a liquid nonmetal element	Its molecule consists of one atom. -a liquid metal element

3 the car (engine)	the car ... cassette
concerning the energy produced	
The chemical energy in the fuel changes into thermal energy which in turns changes into mechanical energy.	Electric energy changes into sound energy

4 Bean plants	Pine plants
According to seeds	
Their seeds are formed inside a pericarp	Their seeds are formed inside cones

5 Hibernation	Aestivation
Definition	Definition
its the behaviour through which Some animals try to dormancy and stop most of their vital activities to avoid the Low temperature in winter	its the behaviour through which some animals try to dormancy and stop most of their vital activities to avoide the extreme rise in temperature in summer and shortage of water and rains
Ex: frogs	Ex: Jerboa

*what is the mathematical relationship (Law)

14. Write down the formula by which you can find each of the following:

1) Density $(D) = \frac{\text{Mass}(M)}{\text{Volume}(V)}$

2) the number of electrons that saturates (the energy level of an atom:) the first four energy levels $= (2n^2)$, where (n) is the number of the energy Level.

3) Weight of an object and its mass
weight = Mass x Acceleration due to gravity.

4) Mechanical energy of an object and its potential energy.
Mechanical energy = Potential energy + Kinetic energy.

5) Potential energy, weight and height.
Potential energy = weight x Height.

6) The work done
Work = Force x Displacement.

15) write the function (use) (Importance) of each of the following:

1. Front teeth of hedgehog:	to capture insects
2. wide indented beak of duck:	to help(it) filter the food from water
3. Pads of camel	: to help it wander through the hot desert sand.
4. Beaks of hawks	: to enable them to tear the prey's flesh.
5. Copper-gold alloy	: it is used in making jewels
6. Simple cell	: it is used to convert chemical energy into electric energy

15) Write the function (use) (Importance) of each of the following:

7. Long arm of monkey	: to enable it to climb trees and catch things.
8. Nickel chrome alloy	: it is used in making heating coils
9. microscope	: it is used in seeing micro-organisms
10. Solar cell	: it changes solar energy into electric energy.
11. Palm Legs in ducks	: (to) help them in swimming
12. Stainless steel alloy	: it is used in the manufacture of cooking pans.
13. Helium gas	: it is used in filling celebrations balloons.

16) What happens when ... ?
What are the results based on ... ?
What do you expect in each of the following cases?

1. **The variety of ways of movement in mammals.**
Some adaptations took place in mammal's limbs to suit the the way of movement.

2. **Polar bear can't undergo hibernation.**
It will die because it can't tolerate the extreme cold.

3. **The aestivated animals don't store their food in the form of fats.**
They will die because they don't obtain the enough food during aestivation.

4. **The beaks of a hoopoe and a hawk are mutually exchanged.**
Hoopoe feeds on meat and hawk feeds on worms and snails.

16- What happens when ...
- What are the results based on ...
- What do you expect in each of the following cases;

5- Predatory plants can't capture insects for a long period of time.
they cannot make their needed proteins.

6- you add 50 cm^3 of ethyl alcohol to 100 cm^3 of water.
The volume of the mixture will be less than 150 cm^3.

7. The electron gains a quantum of energy.
It transfers to a higher level and the atom becomes excited atom.

8- The object mass is doubled ? related to its kinetic energy
its kinetic energy is doubled

9. Increasing the well Known species of Living organisms.
putting plans of classification of living organisms.

10. Hot object touches a cold object.
Heat energy transfers from the hot object to the cold object until their temperatures become equal.

11. Leaving a piece of iron exposed to moist air for a period of time.
It rusts due to its reaction with atmospheric oxygen.

12. friction of the bicycle wheels to a rough surface.
The temperature of wheels of the bicycle increases.

16 What happens if when ..

13. A ball is raised upwards, then it is Left to fall downwards.

When the ball is raised upwards, its potential energy increases and kinetic energy decreases, while when it falls downwards its potential energy decreases and kinetic energy increases.

14. Hawks and vultures have not sharp and strong crooked beaks.

- They can't tear the prey's flesh.

15. Metallic spare parts of cars are not covered with grease.

- They will rust and corrode.

16. Open a bottle of perfume for a period of time.

The odour of the perfume spreads all over the room.

17. If water is used to put out the petrol fires.

The petrol floats on water surface, so the fires don't put out because the density of petrol is less than that of water.

18. If you put a drop of potassium (ink) permanganate in a jar containing water.

The colour of (potassium permanganate (ink)) spreads through all the water, because the molecules of potassium permanganate are in a continuous motion in all directions among water molecules.

16 What happens if ...

19- Rubbing your hands together
The mechanical energy changes into heat energy by friction

20- Coil the wire of a simple cell around a compass
The needle of the compass deflects.

21. The bones of the front limbs and fingers of monkey are not elongated.
It becomes unable to climb trees and catch objects.

22. you inserted two different metallic rods in a lemon connected by a wire.
(An electric current flows through the wire)
Dipping a copper rod and a Zinc rod connected by a wire in diluted sulphuric acid.

23. Increasing the speed of a moving object to double.
its Kinetic energy increases four times.

24. The mass number equals the atomic number in the nucleus of an atom of an element.
The nucleus of an atom of an element doesn't contain neutrons.

25. The overuse of chemical pesticides
cause chemical Pollution for water, air and soil and hence cause cancer.

26 Camel exchanges its pad with a horse's hoof.
The feet of the Camel sink into the sand and the horse cannot run on the rocky soil.

27. Increasing mass of an object. (concerning its density).

its density remains constant

17 Name five of the technological applications which convert an energy form to another, then mention what the energy transformation in each application is.

	Energy changes from	into
1. Sewing machine	Electric energy	Kinetic energy
2. Solar cell	Solar energy	Electric energy
3. Television	Electric energy	light and sound energy
4. A cellular phone	Electric energy	light and sound energy
5. Nuclear reactor	Nuclear energy	Electric energy

18 What is meant by the following?

1. **Potential energy of an object is 20 joules.**
This means that the stored energy in the object due to the work done on it is 20 joules.

2. **Mechanical energy of an object is 100 joules**
This means that the sum of potential and kinetic energies of the object equals 100 joules.

3. **the density of aluminium is 2.7 gm/cm^3?**
This means that mass of 1 cm^3 of aluminium is 2.7 gm

4. **The kinetic energy of an object = 20 joules.**
The work done during the motion of the object is 20 joules.

5. **Melting point of ice = 0°c**
The ice begins to change into water at 0°c.

(19) The migration is a type of adaptation for some birds : 1. Why some species of birds are adapted to the migration ?
2. What is the type of this adaptation ?

1- To search for more lighted and warmer regions for reproduction.
2- Behavioural adaptation.

(20) How can the following be adapted to their environment:
1- Stick insect to hide from its enemies
2- Quail bird to overcome the decrease in temperature
1- It looks like the branches of plants.
2- It migrates from cold and polar regions to more lighted and warmer regions for reproduction at the same time every year.

(21) Compare between : [Types of adaptation]

1- Structural (anatomical) adaptation	2- functional adaptation	3- Behavioural adaptation
It is a modification in the structure of one of body external organs of a Living organism to cope with the environmental conditions Ex: the camel's pad structure	It is a modification in some tissues and organs of the body of a Living organism to become able to do specific functions Ex: secreting poison in snakes	It is a modification in the behaviour of a Living organism at specific times of the day or year. Ex: Birds migration at certain times of the year

Energy transformations inside the car :

Car constituents (technological applications)	Energy transformations
• Car engine :	– The chemical energy stored in the fuel changes by burning into thermal (heat) energy. – Heat energy changes into mechanical energy (to move the car).
• Car dynamo :	– A part of mechanical energy (kinetic energy) changes into electric energy.
• Car lamps :	– A part of electric energy changes into light energy.
• Car radio cassette :	– A part of electric energy changes into sound energy.
• Electric heater of car air conditioner :	– A part of electric energy changes into heat energy.

Some technological applications and their negative effects :

Technological applications	Negative effects
• Car exhaust :	– It causes chemical pollution for air which causes chest and eye diseases.
• Military explosions :	– They leave harmful effects and diseases and cause death.
• Chemical pesticides :	– They cause chemical pollution for soil, air and water. – They cause cancer and food poisoning.
• Nuclear weapons :	– They cause the massive destruction.
• The webs of wireless transmitters of cellular phones :	– They cause electromagnetic pollution.

Some technological applications which produce heat energy :

The device	The resource of energy depending on it	The kind (type) of energy resource	The effect on the environment
• Water heater : • Electric heater :	Electricity	Renewable	Non-polluted
• Solar heater :	The Sun	Permanent	Non-polluted
• Electric stove :	Electricity	Renewable	Non-polluted
• Gas or petrol stove :	Petroleum derivatives	Non-renewable	Polluted
• Gas oven :	Natural gas [Butan gas]	Non-renewable	Polluted
• Coal fire :	Coal	Non-renewable	Polluted

	Potential energy	Kinetic energy
Definition	It is the energy stored in the body due to work done on it.	It is the work done during the motion of an object.
Factors affecting it	• Weight of the body. • Height from the ground.	• Mass of the moving body. • Speed of the moving body.
Law used	• Potential energy = Weight × Height.	• Kinetic energy = $\frac{1}{2}$ × Mass × $(\text{Speed})^2$.

Energy forms	As the Energy	Energy resources
Mechanical Energy (Potential energy + Kinetic energy)	stored in →	waterfalls
light energy	produced (from) →	Electric lamp
sound energy	produced from →	Radio cassette
Electric energy	produced from →	Solar cell
chemical energy	Stored in →	food
Heat energy	produced from →	Burning of wood
Nuclear energy	Produced from →	the reactions in the nucleus of an atom

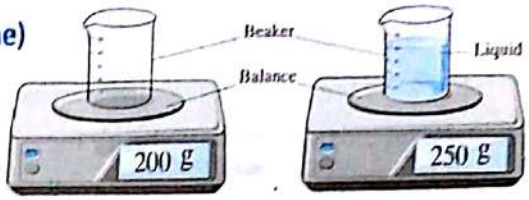
	Energy Used	Energy Produced
Photosynthesis	Solar energy	chemical energy
Dry cell (simple cell)	chemical energy	Electric energy
Solar heater	solar energy	Heat energy
Electric bell	Electric energy	sound energy
Electric heater	Electric energy	heat energy
Simple pendulum	Potential (energy) changes into Kinetic energy and vice versa	

50

The diagram shows an experiment to find the density of a liquid

By using the formula (Density = Mass/Volume)

Calculate the density of the liquid.



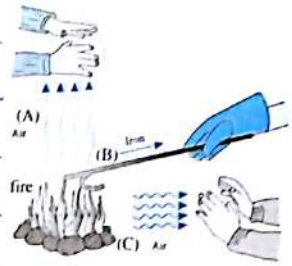
Mass of the liquid =

250 − 200 = 50 gm.

Density of the liquid = $\frac{\text{Mass}}{\text{Volume}} = \frac{50}{40} = 1.25$ gm/cm^3.

Study the figure, then mention :

Heat transfers through different media by :
(conduction, convection and radiation).
Mention the method of transferring heat
in each area (A, B, and C).



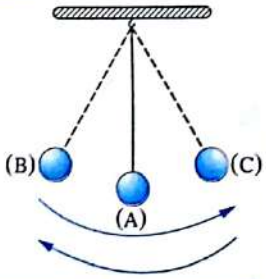
At area (A) heat transfers by convection and radiation

At area (B) heat transfers by conduction.

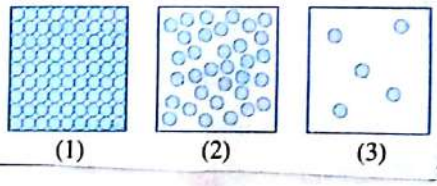
At area (C) heat transfers by convection and radiation

Examine the figures , then complete the sentences :

1. The maximum potential energy is in point(s) .....
, while the maximum kinetic energy is at point(s) .....



2. The figure represents the gaseous material is .....
, while the figure represents the liquid material
is .....

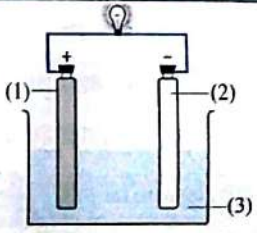


1 - (B) and (C) — (A)

2 - (3) — (2)

Look at the opposite figure, then answer :

1. Mention the name of the opposite.
2. Label the figure.
3. This device changes ..... energy into ..... energy.



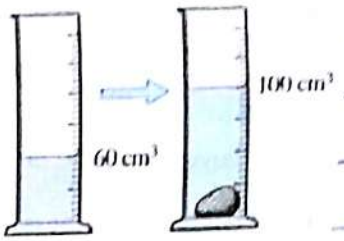
1- simple cell 2- (1) copper plate (2) Zinc Plate (3) Dil. Sulphuric acid

3- Chemical - Electric

Study the opposite figure which represents :

The volume of water before and after put a stone on it.

Find the density of this stone if its mass = 80 gm?



The volume of the stone $= 100 - 60 = 40\ cm^3$.

The density of the stone $= \frac{\text{Mass}}{\text{Volume}} = \frac{80}{40} = 2\ gm/cm^3$.

Two players play volley ball, If the mass of the ball is 1.5 kg and gravity is 10 m/s^2. Find :

1. Potential energy at position (1) that represents the maximum height, if the net at height = 2m.
2. Mechanical energy at position (2) that represents the ground.

1. Weight = Mass × Acceleration due to gravity
$= 1.5 \times 10 = 15\ N$

Potential energy at position (1) = Weight × height =
$15 \times 2 = 30$ joules.

2. ∵ P.E. at position (1) (maximum height) = 30 joules
∵ K.E. at position (1) (maximum height) = Zero
∵ K.E. at position (2) (on the ground) = 30 joules
∴ Mechanical energy at position (2) = P.E. + K.E.
= Zero + 30 = 30 joules

Best wishes علوم مع غادة صلاح

Final revision for first prep .	First Term	Mr .Alaa' Elshabrawy

Give reason:

1. **Water is not used to extinguishing petrol fires**
   Because the density of petrol is lower than that of water so, petroleum oil will float in water surface.
2. **Equal masses of different substances have different volume**
   Because of their different densities
3. **Sodium and potassium are kept under kerosene**
   To prevent their reaction with the oxygen of the atmospheric air
4. **Silver and platinum used in manufacture of jewelries**
   Due to they are inactive metals so, they keep their metallic luster for long time
5. **It is difficult to fragmentize a piece of iron, but it is easy to divide amount of water**.
   Because the attraction force among the molecules of iron is very strong while among molecules of water is weak .
6. **Liquid take the shape of its container**.
   Because the intermolecular spaces among its molecule is relatively high
7. **Solid matter changes into liquid by heating**
   Because the molecules of the solid matter gains heat energy ,so their speed increase and on melting temperature the molecules overcome the molecular attraction force so they will convert into liquid
8. **The molecule of oxygen is an element while that of hydrogen chloride is a compound**
   Because the molecule of oxygen is composed of two similar atoms while hydrogen chloride is composed of two different atoms
9. **The nucleus of the atom is positively charged**
   Because it contains of positive protons and neutrons electrically charged
10. **The atomic mass is always more than the mass number**
    Because the mass number equals summation of number of protons and neutrons inside the nucleus while the atomic number is the number of protons only
11. **The third energy level is saturated with 18 electrons**
    That is according to the relation ($2n^2$) where (n) =3
12. **The relation ($2n^2$) is applied only on the first four energy levels**
    Because the atom will be unstable if the energy level contains more than 32 electrons
13. **The electrons filled the energy level (K) before (L)**
    Because the energy of the energy level (K) is lower than that of (L)
14. **The inert elements can't share in the chemical reaction in the ordinary temperature**
    Because their outermost energy level is completely filled with electrons

15. **The mass of the atom is concentrated in the nucleus**
    Because the mass of the electron is negligible in relative to the mass of the protons and neutrons
16. **The value of weight of a body is differ from its mass**
    Because the weight of the body equals its mass × the gravity acceleration
17. **The potential energy of a body decreases gradually on falling to the ground**
    Due to the decreasing of the height of the body decrease gradually and (P.E=w × h)
18. **Although on falling of the body to the ground and its potential energy decreases but, its mechanical energy remain constant**
    Because the decreases in the potential energy of the body = increases in its kinetic energy
19. **On dipping two plates of copper in dilute sulphuric acid , it is not represent simple cell**
    Because the electric simple cell composed of two different metals immersed in dilute acid
20. **Sunrays transfers by radiation**
    Because it doesn't need a medium for transferring
21. **Spider is not from insects although connection of its body with jointed legs**
    Because it contains 4 pairs of jointed legs while the insects contains 3 pairs of jointed legs
22. **Secreting of sweat is considered functional adaptation**
    Because it includes the ability of the organ to do specific function
23. **The modification of the forelimbs of mammals**
    To perform their motion
24. **Modification occurs in the beaks and legs of birds**
    According to the food type ,the way of movement and environmental conditions
25. **Predatory able to bend to control pouncing the prey**
    Because their four fingers end in strong and sharp claws

Write the name for each of the following symbol :

N - K - Cu - O - Br - Zn - F - Au - Mg - Mn - Ba

Nitrogen - potassium - copper - oxygen- bromine zinc - fluorine - gold - Masgnesium -manganese -barium

Write scientific term :

1. The mass of unit volume of the matter (**density**)
2. Elements reacts with oxygen on exposing to humid air (**very active metals**)
3. The spaces among molecules of the matter (**intermolecular spaces**)
4. The simplest form of matter which can't be analyzed**(element**)

5. Particles affected on the mass of the atom but don't affected on its charge(**neutrons**)
6. The amount of energy lost or gained by the electron to transfer from one energy level to another (**quantum**)
7. The amount of energy equals the difference between the energy of two levels (**quantum**)
8. In active gases in the ordinary conditions (**Nobel gases –inert gases**)
9. The atom which gain an amount of energy (**excited atom**)
10. The stored energy in an object due to work done on it (potential energy)
11. A form of energy transfers from higher temperature object to lower temperature object (**heat energy)**
12. Way of transferring heat through electric wires **(conduction**)
13. Transferring of heat energy through gases and liquids (**convection**)
14. Terrestrial plants reproduce by formation of spores **(ferns) (voughair and Adiantum**)
15. Plants their seeds are formed inside cones (**Gymnosperms)**
16. Branch of biology searching the similarities and differences among living organisms (**Taxonomy)**
17. The group of similar living organisms in shape that can reproduce to give birth of new fertile individual**(species**)
18. Adaptation studies the structure of one body organ (**structural adaptation**)
19. Adaptation of some organs and tissues to do a specific function (**functional adaptation**)

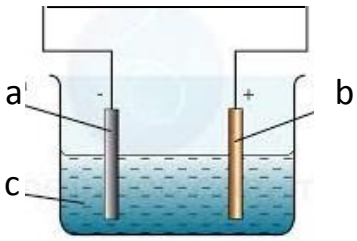
What happens when :

1. **Using of water inn putting out petrol fires**
   The petrol floats on water surface, so fires don't put out
2. **Iron nail moisten by water is exposed to air for several days**
   It rust due to the reaction with atmospheric oxygen
3. **Putting some of table salt in water**
   The molecules of table salt spread throughout the intermolecular spaces among water molecules
4. **The nucleus of an atom doesn't contain neutrons**
   The atomic number of the atom is equal the mass number
5. **A number of protons changes**
   The charge of the nucleus change, and the atomic and the mass number change so, the element will change into another element
6. **The electron gains a quantum of energy** .
   It transfers to higher level
7. **An exited atom loses a quantum of energy**.
   The electron returns back to its original position in the normal atom

8. **Doubling the weight of an object (in relative to its potential energy)**
   The potential energy doubled
9. **Dipping two different metals connected with a wire in acidic solution**
   An electric current is produced
10. **Rubbing your hands together**.
    Mechanical energy changes into heat energy by friction
11. **You fix the freezer in the lower part of the fridge**
    The lower part of the fridge only is cooled, because the cooled air (of high density) doesn't rise up .
12. **The way of transferring heat in presence of medium or no medium** .
    Radiation.
13. **Camels have strong hoofs at the end of their limbs**
    They become unable to walk on hot desert sand
14. **The forelimbs of whales are not modified into fin-like structure**
    The become unable to swim and dive
15. **The beaks of predatory birds are weak**
    They become unable to tear the flesh of preys
16. **Predatory plants cannot capture insects for long time**
    They can't get their needed proteins
17. **Elodea plants doesn't have air chambers**
    The plant can't store the oxygen producing from the photosynthesis process
18. **Roots of desert plant are short**
    It can't get water from the humid layers in soil.
19. **Stems of cactus plant are weak and long**
    They will be broken by strong winds
20. **The temperature of the body of camel rises to 40˚ C**
    It starts sweating.

<u>From the opposite figure answer the following questions:</u>

1. Mention the name of the opposite device
2. Mention the idea of its operation.
3. Label the figure



What is the meant by :

1. **Melting point**:
   It is the temperature which the solid start begins to change into liquid state.
2. **Potential energy of an object is 30 joules**
   The stored energy in the object due to work done on it is 30 joules
3. **The work done during motion of an object is 50 joules**
   The kinetic energy of this object is 50 joules
4. **The potential energy of an object = zero**
   The object is at the ground
5. **Element its atomic number equal its mass number**
   The nucleus of this element doesn't contain neutrons.
6. **Exited atom** :
   The atom that gains a quantum of energy.
7. **Conservation law of energy** :
   Energy neither created nor destroyed but it converts from one form to another

Give reasons for :

1. Equal masses of different substances have different volume.
2. The atom is electrically neutral .
3. The mass of the atom is concentrated in the nucleus.
4. When an object moves horizontally, its potential energy doesn't change.
5. Wheat plant is an angiosperm.
6. The forelimbs of bat are adapted to be wing

Write the symbols of the following elements

Sodium …(**Na**)….. chlorine …(**Cl**)…. Potassium …(**K)**… Nitrogen …(**N**)… calcium (**Ca**)…

Phosphorus …(**P**)… Aluminum…(**A**l)… silver …(**Ag**)… mercury…(**Hg**)… hydrogen (**H**) Helium(**He**)

Write the electronic structure of the following elements :

23	40	24	4	32	27	31	35	
Na	Ca	Mg	He	S	Al	P	Cl	then:
11	20	12	2	16	13	15	17	

1. Indicate the number of electrons in the outer level in each atom.
2. Calculate the number of neutrons in each atom.

Write the relation by which you can find each of the following :

1. Number of the electrons in each energy level.
2. Density - potential energy for an object - Kinetic energy .

Mention one difference between :

1. Atomic number and mass number
2. Electron and proton

3. Insects and spiders.
4. Rabbit and squirrel
5. Atomic molecule and Diatomic molecule
6. Angiosperm and gymnosperm
7. Mussel and fish
8. Insects and Arachnids
9. Maize plant and wheat plant
10. Sodium and iron (in according to chemical activity)
11. Water molecule and ammonia molecule.
12. Heat transfer by conduction, by convection and by radiation

Choose the odd word and write the scientific term of it and of the rest :

1. Palm- vougheir – Adiantum – ferns
2. $_{10}Ne$ - $_{17}Cl$ - $_{8}O$ - $_{3}Li$
3. Iron molecule – Magnesium molecule – Hydrogen molecule – Copper molecule
4. Wheat – palm – Bean – Brown algae .
5. Armadillo – Lion – Hedgehog – Tiger.
6. Amoeba – Cockroach – Paramecium – Euglena
7. Locust – Mosquito – Spider – Flies – Cockroach
8. Elodea - Opuntia - Cactus - Calamagrostis

Point	odd word	Name of the rest

Problems :

1. A ball is thrown vertically to reach 20 m .height ,if the weight of the ball is 5 N ,calculate its potential energy at :
   - The height point - at the ground - at the mid-point
2. A piece of metal with 40 gm was immersed in a graduated cylinder having 60 cm^3 water , the level of water increased to 80 cm^3.find its density

3. A boy threw a ball of mass 0.1 kg upwards vertically .it reached a maximum height of 2 m .Find the work done by the boy and the potential energy and kinetic energy of the ball at the highest point ($g=10m/sec^2$)